Pests

AND THEIR CONTROL

1941
JULY
VOL. 9 NO. 7

ORGAN OF THE PEST CONTROL INDUSTRY

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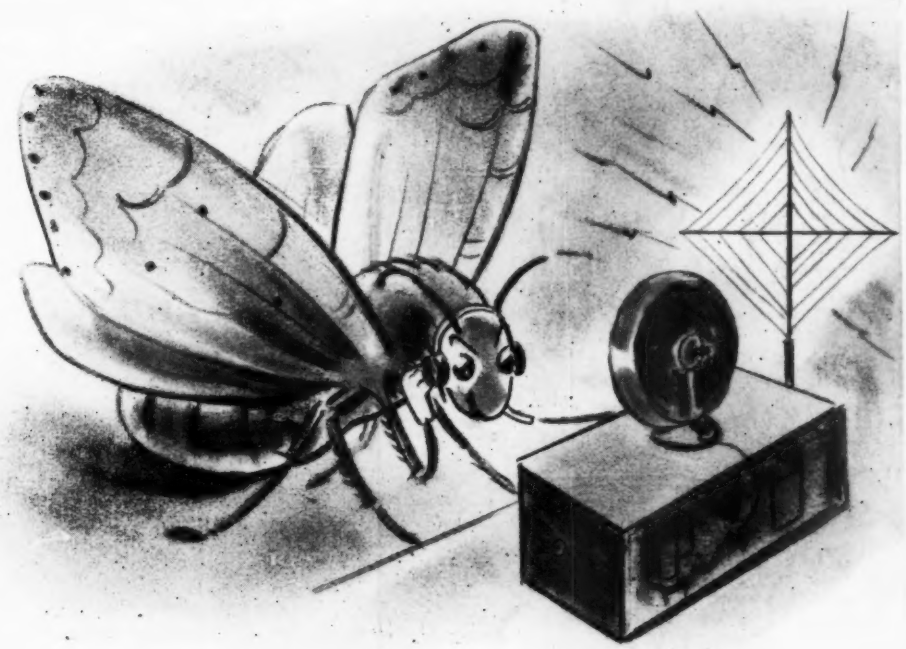

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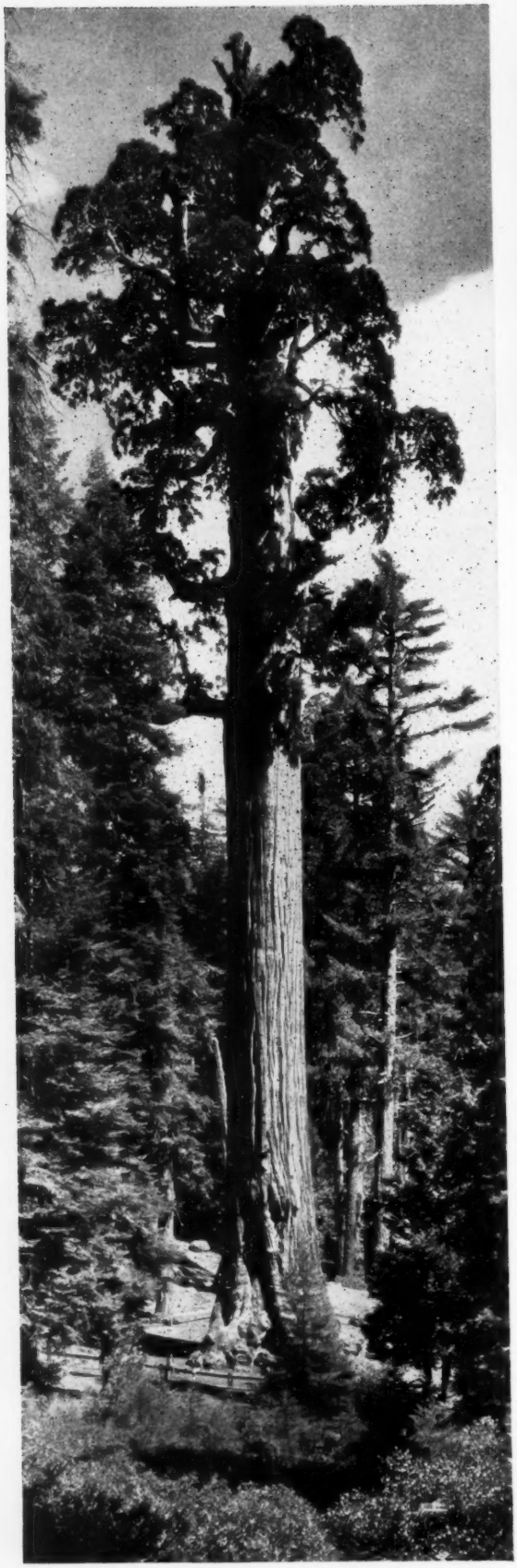

General Grant Tree

Southern California Beach

Scenes from California

Many of the places where these pictures are taken can be easily visited from. . . .

San Francisco—N.P.C.A Convention City—October 27-28-29, 1941

Monterey Coast

Pests

and Their CONTROL

Exterminators, Fumigators, Termite Control Operators, Entomologists, Insecticide and Supply Manufacturers

COOPERATING WITH NATIONAL PEST CONTROL ASSOCIATION

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STATEMENT

The National Association appreciates the co-operation given by way of publicity. The Association is not responsible for articles published unless credited to the Association. The list of officers and directors is published for informational purposes only.

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"Contributed articles in this publication do not necessarily reflect the opinions of the editors. The editors invite discussions, comments and all types of literary material pertaining to pest control and pests from any person interested in the advancement of the field."

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EDITORIAL

Dr. Lee A. Strong

Dr. Lee A. Strong is dead!

If it is a fact that a man is known by the friends he makes, then it is multipliably true of an industry, which in essence is no more no less than a single individual many times over. Such an industry is that of pest control, which felt itself signally honored indeed, and in deed, through the long-time friendship of Dr. Lee A. Strong, Chief of the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, whose untimely death at the age of 54, on June 2, 1941, in Madera Canyon, Santa Rita Mountains, Arizona, while doing research, was reported in the press of the nation at the time.

To those who had the privilege of knowing Dr. Strong in person, the sad news came as a distinct shock. That a grievous loss has been sustained in all quarters where pest control is a matter of moment, is unquestionable. It was perhaps symbolical as well as in character, that he should have died while "in action" in the field warring on pests—a campaign he brilliantly conducted for three decades.

Dr. Strong was an Honorary Member of the National Pest Control Association. He rendered it invaluable cooperation throughout the years of its existence, which was manifested by his personal attendance and ever willingness to provide pertinent information in connection with the research program as well as being instrumental in large measure in attaining greater industry recognition from the entire field of entomology.

He was a lifelong specialist in plant disease control. His chief concern was the Japanese beetle. His department maintained an intensive drive against the Japanese beetle in co-operation with state and municipal officials, the Works Project Administration and agricultural experts, nurserymen, produce growers and representatives of gardening organizations, among whom he was widely known. In 1937 he directed the setting of 104,000 traps, about twice the number ever operated before, to curtail the spread of the pest.

Although the Japanese beetle was the most persistent, Dr. Strong had many other plant destroyers to cope with, notably the grasshopper, which caused as much as $80,000,000 damage to Western farm crops in a single year. In the last five years he was confronted with still a new blight, the Dutch elm disease, which destroyed thousands of elm trees in New York, New Jersey and Connecticut.

Born in Russell, Iowa, he attended the public schools of Nehawka, Neb., and in 1910 began his life work as a horticultural inspector in Los Angeles County, Calif. His entire civilian career was spent thereafter in the service of the State of California or the Federal Department of Agriculture.

Except for a year in France with the 537th Engineers of the A.E.F., he carried on his work in California until 1929, during the last four years of that time as assistant director of the State Department of Agriculture. He went to Washington at the close of 1929 as chief of the Federal Department of Agriculture's Plant Quarantine Bureau and in 1933 succeeded Dr. C. L. Marlatt, as chief of the Bureau of Entomology. In July, 1934, the two bureaus were combined, with Dr. Strong at the head of the new Bureau of Entomology and Plant Quarantine.

Dr. Strong was chairman of the National Plant Board, 1924-29; President of the American Association of Economic Entomologists 1935; member of the Entomological Society of America; the Society of Washington; the American Biological Society and the Masons.

A military funeral with services at the chapel of Fort Myer took place on June 7 and interment at Arlington cemetery.

He married Edith M. Colton in 1921. They have had three children.

Our sincere condolences are extended to Mrs. Strong as well as to the other members of Dr. Strong's family.

Walter S. McCloud Does Some Debunking

THE typical hoity-toity "WHO—ME?" reaction of John Doe or Jane Roe on learning of a home pest condition has, doubtlessly, not only given many a PCO and his personnel a chuckle, but an opportunity to cultivate the gentle art of a poker-face mien as well. This phase of "industry-public relations" is portrayed in concrete, stimulating and trenchant fashion by Walter S. McCloud in an article intriguingly titled "YOU AIN'T GOT 'EM—DID YOU SAY?" in current PESTS. Politeness, no doubt, kept Mr. McCloud from subtitling his offering "THE HECK YOU AIN'T." His material couched in the medium of the humorous, albeit serious in intent, should strike a responsive chord with PCOs.

It is to be hoped that Mr. McCloud, who has given much of himself for industry advancement, will perhaps find the time to elaborate in a subsequent article, on additional ways and means of canalizing the human foibles, he so well describes, into legitimate sales for the industry.

Congressman's Appeal from "Roach Beleagured" Capitol Brings Flood of "Control Remedies"

IT'S been rumored Congressmen sometimes speak only for the record, but we can now state on unimpeachable authority, it is definitely not so when cockroaches are about. June PESTS (page 31) carried reprint of a news item with lead: "HERR ROACH INVADES THE CAPITOL." Sequel to this now appears in The Commercial Appeal of Memphis, Tenn. It follows:

> "Representative George H. Bender of Ohio little realized what he was piling up for himself when he announced several weeks ago that the Capitol and office buildings on the Hill were over-run by cockroaches.
>
> Bender has been bombarded ever since with concoctions from all parts of the country for de-roaching the Capitol. His office has become a veritable cantonment of salesmen, demonstrating spray guns, fumigants, poison pastes and other insect-killers.
>
> 'A roach's life isn't worth a nickle around here since I made that speech,' says Bender solemnly.
>
> Most unusual offering was a home-made preparation in a bottle covered with adhesive tape and labeled: Good for roaches, bed bugs, horse-flies and other insects. Also a sure cure for rheumatism. Shake well before using."

Seriously speaking, of course, we cannot "throw up our hat and cheer" at the appearance of publicity such as the foregoing. It is, we think, merely indicative of a "damping off" attitude still prevalent in certain lay quarters of the forward strides modern day pest control methods have taken. Proper publicity with which the industry is being favored — qualitatively as well as quantitatively — will in time supply the antidote. A striking instance of what is meant by proper industry publicity is exemplified in an article elsewhere in this issue headed: "Metro Goldwyn Mayer Releases Pest Control Movie in the 'Crime Does Not Pay' Series."—ED.

Metro-Goldwyn-Mayer Releases Pest Control Movie in the "Crime Does Not Pay" Series

Deals With Health Dangers Involved in Improper Rat-Proofing. Proper Rodent-Control Depicted.

INDUSTRY-MINDED J. J. Hess of the Exterminating Services Co., N. Y. C., kindly draws attention to the recently released MGM "Crime Does Not Pay" movie short, which treats not only with negligence in rat-proofing and the resultant serious health dangers, but also with proper rodent control. The "crime does not pay angle" involved a grafting health inspector who O.K.'d rat infested areas instead of urging the employment of an exterminator and rat-proofer by the property owner. The picture shows the methods of trapping, Health Department enforcement, etc. and should do no end of good for the industry. It is even possible before this appears in print, Mr. Hess may have been able to arrange for a private showing of the film in the MGM projection room for the benefit of the PCOs in the N. Y. metropolitan area. Those interested in attending are urged to contact either J. J. Hess or Bill Buettner for more details.

It is our understanding the N.P.C.A. through their Membership Service Letters will ask PCOs in all parts of the country to contact local motion picture houses with the thought in mind that the film should be included in their regular weekly programs.

Mr. Hess also makes mention of a Bing Crosby broadcast which took place recently and which featured at some length an interesting interview with a mythical exterminator.

Ladies Home Journal "Goes" Pest Control

WRITES Household Editor, Grace L. Pennock, in June, 1941, issue of *Ladies Home Journal:* "Your face needn't be red, when you find your first cockroach. They visit the best and cleanest families, especially in warm climates and in crowded cities. Just don't humor them. Use special tablets, made to cockroach taste, or sodium fluoride, in their favorite haunts."

This advice leads us to these two observations: If cockroaches don't like the same kind of foods that everyone else does, they can go chase themselves; moreover, we hope women will take Miss Pennock's advice to heart about not turning "red," otherwise "terrible" confusion will arise since we won't be able to tell whether a woman's roseate hue is "au-natural"—"Coty's best"—or merely due to discovery of her first cockroach. Better still, of course, is to call a competent PCO rather than relying too heavily on the suggestions offered by Miss Pennock.

The National Pest Control Convention Will Be Held in San Francisco, October 27, 28, 29, 1941—Be Sure and Be There.

Correction

May, 1941, issue of PESTS, *and their control,* carried reprint of a talk by Dr. J. C. Geiger entitled "PUBLIC HEALTH AND PEST CONTROL." Of the five paragraphs (quoted below) from this article, the first two were extractions in substance from Dr. Hugo Hartnack's book "202 COMMON HOUSEHOLD INSECTS," and the last three excerpts from the same source, though these facts were inadvertently not indicated at the time. We are glad to make acknowledgment and correction of this oversight at this time. Regrets and apologies are also tendered Dr. Hartnack.

"Vermin direct attention to human errors and transgressions and exact a penalty when intrusion is made upon their well established domain. We do the same with them. We may kill vermin because we are stronger and more clever in many ways than they, but we are only exercising dictatorial privileges or Democratic logic or Republican mathematics to silence our critics.

"Vermin are tempted by carelessness, by the collection and the negilgent storing of food and clothing, trying to secure for ourselves more than we can immediately use. They insist that we should give them some consideration too, that they have been here longer than we, and that they will gladly let us live here, providing we do not make it too difficult for them and do not encroach upon their well established sphere of interest.

"We should have little trouble with vermin if architects and builders would do a better job in eliminating entrances and hiding places; if we did not offer to vermin our sleepers, beams and uprights as shelter and food; if stops were placed in hollow walls; if better provisions were made for cleanliness and effective safe storage for food, clothing and other commodities. The fact that pests take advantage of what we leave readily available to them is not their fault.

"When poisonous gases and other killing agents have to be used against pests, it brings to mind the endemic and cyclical psychosis of war with man's inhumanity to man.

Builders and architects should understand the fundamentals of pest control and should know that besides wind, rain, snow, hail, heat and cold, that vermin other than house flies will enter if not 'built out.' Moreover there appears to be no intelligent blackout at any time in any group of insects."

The Joy of Being Editor

Getting out this magazine is no picnic.

If I print jokes, people say I am silly;

If I don't, they say I am too serious;

If I clip things from other magazines, I am too lazy to write them myself;

If I don't, I am too fond of my own stuff.

If I don't print contributions, I don't appreciate true genius;

If I do print them, the magazine is filled with junk.

If I make a change, in the other person's write up, I am too critical.

If I don't, I am asleep.

Now like as not some of you will say I swiped this from some other magazine—

I DID.

PUBLIC RELATIONS

You Ain't Got 'em, Did You Say?

By WALTER S. McCLOUD, *President, W. B. McCloud & Company and Former President of the National Pest Control Association*

MAYBE bedbugs brag about the fancy places they stay in. Maybe mice are proud of the high rents their human landlords pay. Maybe silverfish think they're on the Riviera when they flicker on your floors. Maybe anything. When it comes to the housing habits of all these unwholesome pests, we know them like a book—but we can't read their minds.

We can sometimes read the minds of people, though, poor meek pest controllers though we be. A very special blank expression, a certain look of scorn, or a haughty how-dare-you glare—will tell us every time that the people being spoken to mean to say very plainly that rats, roaches and bedbugs are simply not in their line! Oh my, no! How horsey of us to dare to suggest that they even know what the dirty things look like! Other people have them—sure. But they—no sir!

Now listen! You ain't got 'em did you say? Tell it to Sweeney. We've been around. We've poked in some pretty filthy places—and we've also ritzed the doorman at some ultra ultra spots, being wise to the wild life within.

After five, ten or fifteen years of big game hunting in basements, bakeries, bars and beauty parlors, drug stores, candy factories, hotel kitchens and hospital operating rooms, humble homes and Gold Coast apartments, any pest control operator hates to hear a fellow flatly state that he ain't got 'em!

It's just too much to believe. It's like saying that Niagara Falls ain't got no water or that the Irish run away from a fight. The water starts miles away from Niagara Falls—the Irish have been fighting for generations. And household pests for generations have been disturbing man's peace of mind and health. They have moved right along with man's progress and settled right in on man's new world.

You ask where they can come from—when your place is so clean. The answer is simple. They come from a long line of ancestors—even as you and I. And they're not going to be discouraged because you refuse to believe that they exist anywhere near your stamping ground. They love you.

The habits of household pests are curious—so human. They travel, you know, even as you and I. Only they use freight cars, innocent-looking packages where they can bed down in excelsior, barrels, grocery bags. Ah Sherlock, that grocery bag—maybe that's where that first slippery roach came from:

You ain't got 'em did you say? Did you escape measles, mumps, chickenpox when you were a youngster? That's just about how much chance you have to go through life without having household pests bedevil your existence.

The hotel manager, probably, is the most willing to admit that he is haunted by creatures. He knows the hungry lot for what they are, and is too busy himself to make even a feeble attempt to keep them out of his kitchen. It is the hotel manager who thoroughly appreciates the value of professional Pest Control Service. He knows that the reliable pest control operator gets into every corner, applies the right chemical, and prevents an outbreak. He knows that the professional is not only a cleaner-upper, but is capable of "controlling" the pest situation.

There was a time, and not so long ago either, when an exterminator man could ask a baker, steward, housewife, almost anyone, about their pest problems and the answer would be, "I ain't got 'em." Then secretly these same proud people would heigh to the drug store and get some bug powder or rat poison.

Nowadays, the denials are not quite as definite as they used to be. News travels fast, and the knowledge that one's neighbor "has 'em" is enough to throw a scare into the hearts of the haughty. When they're smart enough to call a good exterminator man pronto, they get not only exterminating, but **pest control,** for the really progressive operator is as eager to stop the potential marauding of mice, rats, roaches and bugs as he is to do a good job of routing those present.

You ain't got 'em, did you say?

Right-o—you haven't got 'em if you have PCO Service (Pest Control Service). Otherwise—tell it to Sweeney.

Reprint costs of Mr. McCloud's article on request.

Have you heard about the moth who ate a hole in the rug because he wanted to see the floor show?

Insects

The war in Europe has increased the insect-identification business of the National Museum at Washington. Dr. E. A. Chapin, in charge of this work, explains that requests for identifications formerly going to Germany are now coming to the United States. The museum collection contains approximately 5,000,000 specimens, representing about 300,000 known species of insects.

Twenty people in the National Museum spend all their time identifying insects. This work has been going on for nearly sixty years. It could go on forever. Only a small part of the insect world has been explored.

The insects range from microscopic forms—the ptiliidae, for example, one-fiftieth of an inch in size—up to giants in the insect world, big scarabs and beetles, having pincers the size of a small lobster.

The government entomologists say there are nearly 80,000 different kinds of insects in North America alone. They have "notes" on more than 20,000 species, of which "at lease 10,000 are pests of more or less importance." Heading the list in its destructiveness is the mosquito, charged with depredations of more than $125,000,000 a year. Second is the boll weevil, that chews on the average 2,000,000 bales of cotton a year. The corn earworm is third, destroying nearly $100,000,000 annually of corn, tomatoes and cotton.

Red Ants and Rats Infest Cocos Island

Cocos Island, mentioned as a prospective base to help guard the Pacific side of the Panama Canal, is an uninhabited island, though hardly bereft of pest life. The island is infested by red ants that destroy much timber and prove annoying to men as do the mosquitoes. Rats and stunted wild hogs are the most numerous wild animals.

The Common Names of Insects

By E. O. ESSIG, *Professor of Entomology and Entomologist in the Experiment Station, University of California, Berkeley*

EDITOR'S NOTE: *Address given before the Fourth Annual Pacific Coast Pest Control Operators' Conference, University of California, Berkeley, February 20 to 22, 1941.*

ONE of the great opportunities and privileges of an educational institution is to aid individuals and organizations engaged in the practical solution and amelioration of the many perplexing problems of the human race. The concentration of populations and the ever increasing desire of peoples to live under better and more comfortable sanitary conditions has made the work of the pest control operators not only necessary to our economic welfare but also wholly worthy of the interest and cooperation of our city, county, state, and federal scientific and administrative agencies.

The kind of cooperation which has been instituted between our Division of Entomology and Parasitology on the one hand and your Pacific Coast Operators on the other has, I am certain, been of great value and satisfaction not only to the parties directly concerned but also to the public at large. Particularly in these momentous times of food production and preservation is it important for all of us to bend every energy in the effective and continued wholesale reduction and extermination of insect and other pests which take such an enormous annual toll from our stored food supplies.

Such meetings make for good fellowship and confidence and strengthens all of us in our joint efforts to serve our government and our fellow men. While we are greatly concerned in conveying to you all the latest up-to-date scientific information, we are nonetheless anxious to acquire from you the practical phases of pest control operations and to be acquainted with the many urgent and new problems that constantly arise in the actual prosecution of your work.

The activities of the pest control operators are varied. You must have a considerable knowledge in many fields: You must be architects, to understand structures; carpenters, to remove and restore timbers; toxicologists, to know your products and their effects on buildings and their contents; zoologists and entomologists, to control rodent, insect, and other animal pests; plant pathologists, to be familiar with and to treat wood rots and other fungi; inspectors, to ascertain the needs for treatment; salesman, to sell yourselves and your skill; diplomats, to deal skillfully with the public and the law; collectors, to obtain the hard-earned cash to conduct your business; and many other similar professional types. If you can do all these and maintain your own personal integrity and an honest business you are worthy of all the information and cooperation that any scientific institution can give.

One of the many perplexing and inescapable problems is the identification of the pests involved. In entomology, especially, this is too often difficult for the trained entomologist and is even more confusing for the practitioner. But these names of insects, whether scientific or common, are essential. The early realization of the fact that knowledge could not be accumulated about things until it had a name gave rise to our present system of nomenclature. Linnaeus, the founder of the binomial system of naming plants and animals, has said, "If names perish, the knowledge of things perishes also." Identification is the first step preceding intelligent control. Hartnack (1939) states that a good exterminator "wants to make sure that the vermin was identified correctly, that what was called a silverfish was not, in fact, waterbugs." Since control depends upon the knowledge of the biology, habits, and often also the distribution of the pest, it is essential that the correct identification be had before such information can be made available through personal knowledge and experience or from the literature, technical institutions, and professional men.

In entomology there are as many or more names than in all other branches of natural history combined. Textbooks and other published figures give the number of species from 50,000 to 1,000,000, while calculated figures run beyond 1,500,000 species. Fortunately, these are world figures and we can hardly be expected to know so many names. However, it must be remembered that the majority of insect pests of concern to the pest control operators in any region in this country are introduced from various other parts of the world and that only a relatively few are idigenous to North America. Many of these insects, like the bedbug, cockroaches, stored-food and woolen and fur insects, and the parasites of man and domestic animals, have been carried by commerce to all parts of the inhabited world. Since primitive times these insects have had names and some of these names have been handed down to us through ages. They constitute the bases for all our common and scientific names. It appears that from the beginnings of man's knowledge of insects these minute animals, which were thought to arise spontaneously from dust, dew, and refuse, were distinguished by names referring to groups of various denominations rather than to individuals. Thus to all insects, mites, spiders, ticks, scorpions, and the like, the Latins gave the common name *vermes* or *vermis*, which literally meant any small thing suspected of being alive. From these Latin appelations we derived the word *"vermin,"* which is still used for the known and unknown minute animals that in anywise affect man and his property. Until very modern times another common word *"microbe,"* from two Greek words meaning small life, was first employed to indicate germs or forms of life too small to be visible, yet, nevertheless, fraught with great destructive powers. This term has now been replaced by the name *"bacteria,"* which refers to definite microörganisms. Even the names of species and varieties refer to groups which may number thousands and even millions of individuals. Only rarely, in stores for children and in the movies, do we encounter the names of individual insects, such as: "Johnny Cricket," "Tommy Grasshopper," "Willy Ladybug," and "Billie Bumblebee," by Johnny Gruelle (1919); "Grasshopper Green," by John Rae (1922); and "Jimminy Cricket," in the movie "Snowwhite and the Seven Dwarfs," by Walt Disney.

Some of the common old Anglo-Saxon and English names that still persist are: *Bug or bugg*, which referred to bugaboo, a specter or an

insect. It was early applied to the common bedbug, an insect that has been an infamous bugaboo to the human race even to the present time. However, it may be considered as one of man's first, always faithful, and most intimate domestic animals—one that cannot live without him. The common Latin name for this insect was *Cinex*, and Linnaeus adopted it as the generic designation for this very insect. In Egypt, in the Holy Land, and in Greece this insect was a scourge. The Greek poet, Aristophanes (448?-380?), is reported to have described Heaven as a place where bedbugs are most scarce. But man has acquired a certain amount of resistance and tolerance to this insect. A certain old world ruler became so accustomed to their company at night that he could not go to sleep unless 50 or more were placed upon his belly. A middle western story indicates the lack of general concern by the early settlers: An old man was sitting on his wood pile whittling and spitting tobacco juice when his wife came out to hang up the washing. "Paw," said the Mrs., "there's a bug crawlin' on you." Pop just went right on with his whittling without looking up. Presently he said, "No, maw—it's crawlin' off me."

Flea derived from the Middle English *fle, flee;* the Anglo-saxon *flea, fleah;* the Danish *vloo;* German *floh,* all meaning to flee or to run away. These names were no doubt applied to this insect for its abilities to escape capture. Wood (1870) tells us that fleas swarmed in the old world and the Mediterranean region was a veritable flea den. This was due in large part to the close relationship between man and his domestic animals—a relationship that still finds a large part of our rural and city population housed with innumerable flea-gathering, flea-breeding, and flea-disbursing domestic animals. After discussing the abundance of these pestiforous pests in England, Kirby and Spence (1815) relate a common incident about the humorous old lady, who thus upbraided a young woman: "Dear Miss, don't you like fleas? Well, I think they are the prettiest little, merry things in the world. I never saw a dull flea in my life." To these insects the Latins gave the common name *Pulex*, which was adopted by Linnaeus as the genus for all the species of fleas known to him. The Spanish call them *pulga,* and we have a town in California bearing that name.

Moth, from the early English *mothe* and German *motte,* and referring to anything that silently eats, consumes or wastes. The name was early applied to the clothes moths and perhaps also to other insects which destroyed woolen fabrics. According to the Rev. J. G. Wood (1870), a learned English naturalist and entomologist, "two words were used in the Old Testament to express the moth . . . For the moth (*'ash*) shall eat them up like garment, and the worm (*sas*) shall eat them like wool." A number of passages in the Scriptures deal with the destructiveness of moths: "Lay not up for yourselves treasures upon earth, where moth and rust doth corrupt, and where thieves break through and steal" (Matt. vi, 19). "Your riches are corrupted, and your garments are moth eaten." The rust, as here used, is considered by Wood to be the grain moth, *Tinea grannella* Linn., which consumed the stores of grain. The same author points out the importance of the large stores of clothing kept by the wealthy. These woolen garments were often severely or entirely ruined by clothes moths, whereas the garments in daily use were generally free from infestation. In cases where large supplies of clothing were kept in special chambers, a "keeper of garments" was employed to protect them from moths.

According to Cowan (1865) some authors believed that the Ancients employed secrets for preserving garments from the moth, but most of these were purely superstitions, such as: "to lay garments on a coffin" (Pliny); "wrapping them in a lion's skin" (Mouffett); or to wrap the skin of a kingfisher among them (Reaumur). Chaucer, in "Canterbury Tales (1372-3), referred to the moth thus: "Solomon seith: 'that, right as motthes in the shepes flees annoyeth to the clothes, and the smale worms to the tree' . . .".

Palmer worm. While we are discussing moths it is interesting to consider the case of the palmer worm, which appears in three passages in the St. James Version of the Bible, one of which reads: "That which the palmer-worm hath left, hath the locust eaten." The translators, for want of a suitable term to indicate a very destructive insect pest, chose a name given to many kinds of hairy caterpillars in England. Sharp (1889, p. 323) suggests that any caterpillar in old English might sometimes be called a palmer worm. That a hairy kind was probably intended might be indicated by the fact that artificial hairy trout flies were also called "palmers" or "hackles." The original meaning of the word palmer, according to Webster, was a "wandering religious votary; an itinerant monk under a perpetual vow of poverty; especially one who bore a palm branch as a token that he had visited the Holy Land and its sacred places."

In North America the common name palmer worm applies to a small gelechiid moth, *Dichomeris ligulella* Hübner, which is a new world species and a pest of apple and other trees or shrubs in New England.

Caterpillars, from middle English *catyrpel,* probably derived from the Latin *cattus,* cat, and *pilosus,* hairy. Certain English moths are called the alder kitten, sallow kitten, and poplar kitten. Among the first important caterpillars observed as pests of vegetation in England were those of the browntail moth, *Euproctis chrysorrhoea* (Linn.), a hairy species which Albin (1720) states "lay themselves up in *Webs* all Winter, and as soon as the *Buds* open, they come forth and devour them in such manner that whole Trees and sometimes Hedges for a great way together are absolutely bare. It will be well worth while for those who value their Trees, or Hedges, to have the *Webs* cut off and destroyed during the Winter." The adult was called the brown-tail at this early date. This is one of the earliest recommendations for controlling a plant-feeding insect.

Butterfly is derived from two Anglo-Saxon words *buttor* and *fleage* (fly) and originally referred, no

Dog Catches Mouse at $1 Cost to Master

A man can have a lot of fun watching his dog catch a mouse on a public street and that's why he should have no objections to paying a $1 fine for allowing his canine to make the pursuit without a muzzle, in the opinion of Magistrate John F. X. Masterson.

"I'm not really guilty," averred Rudolph Kabbler, 53, superintendent of an apartment house at 2126 Benson Ave., in Coney Island Court yesterday. "A mouse escaped from a trap a tenant had given me and my dog had just caught it when I was given my summons."

"I still think you should pay, but I'll charge you your dollar as an amusement tax," responded Magistrate Masterson, thereby setting Kabbler apart from 13 other men and women who also had to fork over $1 each for ignoring the city's dog-muzzling law.

doubt, to certain yellow butterflies, as perhaps the brimstone, the clouded yellow, or even the paler, almost white, cabbage butterflies, because they were the color of butter.

Fly is from the Anglo-Saxon *fleogan;* middle English *flien, fleen, fleyen;* German *fliegen;* and similar words from other languages, all meaning to fly through the air. No doubt this word was used early to designate any insect that flew, like ordinary flies, butterflies, dragonflies, mayflies, etc. The commonest and most conspicuous insects about the abode of early man were probably flies, and to them this term was very early applied. The term was more restricted when Linnaeus designed the order Diptera to include only the common 2-winged flies. The common Latin word *Musca* for the housefly was also adopted by him.

Hessian Fly is the common name applied to a small cecidomyiid, which early appeared in the wheat fields of Staten Island and Long Island during the Revolutionary War. It was given this name because of the belief that it was transported to the colonies in hay brought over by the Hessian soldiers, who were lodged on Staten Island and Long Island and participated in Howe's campaign against New York in August, 1776. Jaeger (1864) believes that the insect may have been introduced earlier since he states: "this insect was seen and known in Staten Island, and at Flatbush, Long Island, as early as 1776." Since the insect appears to be of continental European origin it seems possible that it might have been introduced by these mercenaries.

Louse is, without doubt, one of the oldest domesticated animals as well as the most intimate and loathsome. By the Anglo-Saxons they were called *lus* (singular) and *lys* (plural) and in middle English the term *lous* was used singularly. By the ancient priesthood of Egypt lice were abhorred beyond all other insects, and the priests went to great extremes to keep their bodies clean and free from this vermin that swarmed over the common people. To have one louse was held to be polluted and Wood states that to prevent this state priests wore only linen, which was washed frequently, and shaved their entire bodies every three days. Apparently, no primitive people were without lice, and all of these insects appear to have had a common origin and still belong to varieties of a single species. The term *cootie* is soldier slang for louse, coined in the first World War.

Cadelle, derived from the Latin *catellus,* a little dog or whelp, was originally applied only to the larvae of the beetle, *Tenebroides mauri-*

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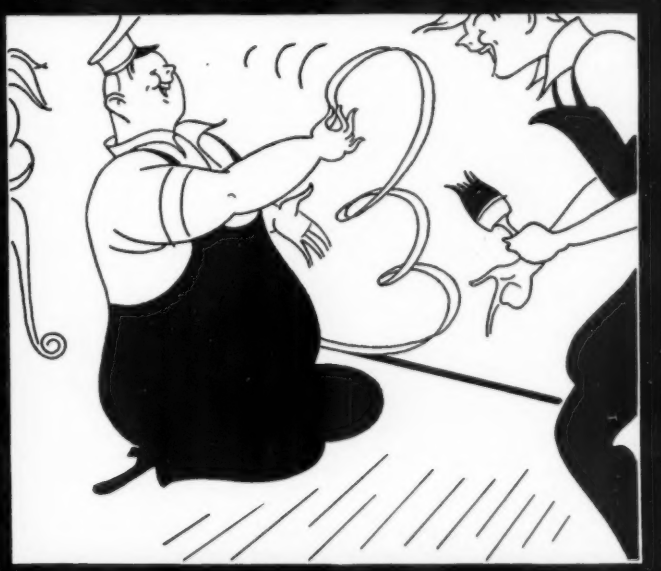

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tanicus (Linn.), but is now generally used for the adult form as well.

These examples may give some idea of the origin of the first common and scientific names in the English language and such is the case in all languages and dialects.

Prior to the general adoption of the binomial system of nomenclature all names of insects are to be considered as the common word in the language spoken or written at the time. In this manner the names employed by the English, French, German, and other modern people were not only retained in the spoken language but were commonly used in connection with or in place of the cultural Greek and Latin designations. Only a relatively few names, which usually referred to groups of insects such as those discussed above, were available and when species were described new common names were frequently appended to aid in a better understanding of the scientific name. Frequently it was but a translation of either or both the generic and specific names, or it might be derived from some characteristic or peculiarity of the insect in reference to its origin, appearance, and habits. To show how some of these have originated is the chief purpose of the remainder of this paper.

Examples of sources from which common names of insects were derived.

1. *From size*: Atlas moth, giant water bug, Goliath beetle, Hercules beetle, lesser cornstalk borer, lesser housefly, little black ant, mosquito bees, no-see-ums, pigmy locusts, tineid moths.

2. *From shape and structure*: angular-winged katydid, bell moths, bent-winged moth, billbugs, bristletails, broad-horned grain beetle, horntails, globose scale, hemispherical scale, hornworms, hump-backer flies, lacebugs, lacewings, long-horned beetles, long-horned grasshoppers, nasute termite, needle bugs, pill beetles, pintail beetles, plume moths, sawflies, sawtoothed grain beetle, silverfish moths, snout beetle, springtails, thread-legged bugs, walkingsticks, wheel bug, wireworms.

3. *From general coloration*: aurulent beetle, black scale, brimstone (butterfly), bluebottles (flies), blues (butterflies), coppers (butterflies), ermine moths, gold wasps, goldsmith (beetle), greenbottles (flies), green bug (aphid), green tortoise beetle, pink bollworm, red ants, redbugs, ruby wasps, yellow-jackets, whitefly, whites (butterflies).

4. *From special color markings*: black-faced hornet, brown tail moth, checkered beetles, death's head moth, diamond-back moth, golden eyes (lacewing), harlequin cabbage bug, harness moth, io moth, red-humped caterpillar, saddle-back moth, six-spotted leafhopper, ten-lined June beetle, twelve-spotted cucumber beetle, w-marked cutworm, yellow-necked caterpillar, yellow-striped armyworm.

5. *From nature of vestiture or covering*: armored scales, bristly rose slug, ciliated sand beetle, golden-haired blowfly, hairstreaks (butterflies), hairy flower beetles, hairy flower wasps, hairy rove beetle, little bear, mealybugs, mealywings, pubescent hoplia, silky fungous beetles, spring soldier bug, spiny tachina, velvet ants, woolly aphis, woolly bear, yellow velvet beetle.

6. *From the sounds they make*: bee flies, breeze flies, bumlebees, click beetles, clicking butterfly, crackling cicada, crickets, double drummer (cicada), drone fly, golden bell (Chinese tree cricket), hummingbird moths, katydid, lyerman (periodical cicada), squeakers (beetles), squeaking sphinx, trumpeter bumblebee, whistling moth.

7. *From descriptive terms*: crab louse, crane flies, flats, flea beetles, graybacks, humped-backed flies, leather-winged beetles, pill beetles, plume moths, thread-waisted wasps, tick flies.

8. *From habits*: armyworms, assassin bugs, cannon-ball flies (warble flies), devastating locust, greedy scale, migrating locust, noctuid moths, robber flies, skippers (butterflies).

9. *From methods of locomotion*: back swimmers, cheese skipper, crazy ant, dance flies, diving beetles, flea beetles, grasshoppers, inch worms, jumper ants, leafhoppers, loopers, measuring worms, procession moth, tumblers (mosquito pupae), tumbling flower beetles, water boatman, water skaters, water striders, whirligig beetles, wriggiers.

An Insect Blackout

Then there is the story about the firefly who flew excitedly up to another firefly in Hyde Park, London, and said: "Put out that light! Don't you know that this is a blackout?"

To which the other firefly replied: "Sure, I know, but how can I help it? When you gotta glow, you gotta glow!"

—C. P. I. Circular, May, 1941.

10. *From architectural or industrial habits*: bag-worms, caddis flies, carder bees, carpenter ants, carpenter bees, carpenter worm, comb bees, gall flies, gall gnats, gall wasps, joiners (bees), leaf-cutter bees, leaf miners, mason bees, mason caterpillars, mining bees, muddaubers, paper-making wasps, pottery wasps, tent caterpillars, upholsterer bees, web worms.

11. *From commercial or food products*: cantharid beetles (cantharides, Spanish fly), Chinese galls (gall aphid), cochineal (scale), ground pearls (scales), honeybee, honeypot ant, jewel beetles, kermes dyes (scale), lac (lac scale), Manna (scale), oil beetles (cantharides), silkworm, wax scale (Chinese wax).

12. *From nature of their feeding*: barkbeetles, branch and twig borer, cutworms, cypress twig borer, engraver beetles, fruit-tree leaf roller, gall gnats, grape leaf-folder, lead-cable borer, leaf-cutter bees, lima bean pod-borer, oak pruner, oak twig-girdler, orange peel-miner, peach twig-borer, pine engraver, pit-making oak scale, serpentine leaf miner, shot-hole borer, strawberry crown borer.

13. *From plant hosts*: apple maggot, asparagus beetle, bean weevil, cabbage bug, codling moth, gladiolus thrips, hop aphis, locust borer, mulberry silkworm, olive scale, onion maggot, pea weevil, plum curculis, rose scale, sugar cane leafhopper, tomato hornworm, walnut husk fly.

14. *From animal hosts*: cattle warble fly, cow louse, dog flea, dog louse, flesh flies, hog louse, horse bot fly, horsefly, human flea, human louse, sheep tick, turkey louse, wallaby lousefly.

15. *From fungi, dead or decaying vegetation and dung*: copra beetles, dried fruit beetle, dung beetles, dung flies, fig moth, flour beetles, flour moths, fungous beetles, fungous gnats, granary weevil, latrine fly, mealworms, rice weevil, scavenger flies.

16. *From animal products and carrion*: blowflies, burying beetles, carrion beetles, carpet beetles, cheese maggot, clothes moths, graveyard beetles, ham beetles, hide beetles, larder beetles, tallow beetles, sexton beetles.

17. *From names of days, months, or seasons*: August thorn (moth), autumnal rustic (moth), December moth, fall cankerworm, fall webworm, harvest flies, June beetle, July highflyer (moth), March flies, March moth, Maybeetle, Mayfly, May high-

(Continued on Page 26)

Coloring Fluoride Powders

By GEORGE E. SANDERS, *B.S.A.*

In 1932 the writer was a part-time employee of a well-known insecticide house with which was affiliated a dry color as well a san analine dye concern. At that time the New York ordinance, which required fluoride roach powders to be colored Cerulean, Nile or Italian blue in order to correspond with Ridgeway's Color Chart No. 19, was in process of enactment. Since the affiliated companies manufactured both analine dyes and dry colors it was of no material importance which process was employed to attain the necessary coloring. The only question that arose in the writer's mind was: Which was best?

As a test, two batches of fluoride were colored. One, by dissolving the analine in alcohol and incorporating it in the powder—and the other by incorporating a dry color which gave the same shade as a dry mix. Both were then given to the men engaged in exterminating work. The first report was that the powder containing the analine was the best for it did not sting the nose so much. After consideration, however, it was decided to use the dry color method of coloring because it was obvious that a material that was so easy on the nose would also be easy on the roaches.

None of the suppliers of roach powder in the New York area was connected with dry color concerns; but since each supplier for the most part had an affiliate that made analine dyes, their powder was colored with analine. To incorporate analine in roach powder it is first necessary to dissolve the analine in alcohol. The addition of the alcoholic solution of analine to the powder, of necessity reduces its dusting qualities, an important factor because roach powder on the common Berman roach depends on its dusting qualities.

Next came a complaint from numerous exterminators, the net of which was, that the colored roach powder or fluoride was only 75% as effective as the old white powder. This confirmed the results of experiments conducted by the writer in 1932, that since enough alcohol had to be added in order to incorporate the analine in the powder, it appreciably reduced the dusting and the killing quality of the fluoride.

The cost of the dry color is approximately the same as the increase of colored over white fluoride. The procedure of the writer is to first mix the dry color with the fluoride and then to grind the mix in a small plate grinder. In mixing alone, about one per cent of the color is required to give the correct shade; where grinding is added, one-half per cent of the color will give as good a shade.

One of the great advantages of dry colors is that they do not fade in the light, whereas the analines used in arriving at a Nile blue color for the most part fade when exposed to light.

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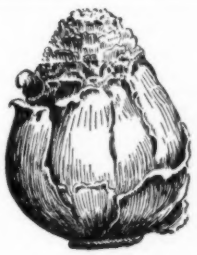

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Rat Proofing and Vent Stoppage of Buildings in Rat Control

By ROY J. BOSTON, *State Typhus Control Engineer, Georgia Department of Public Health, Atlanta, Georgia*

SINCE July, 1937, a state-wide rat control program, supported by an intensified educational program has been conducted in the State of Georgia by the Department of Public Health as a means toward controlling murine endemic typhus fever, a disease transmitted from rat to man by rat fleas. Various rat control measures have been employed such as rat extermination by means of poison bait, garbage control and clean-up of premises, rat proofing, and, since May, 1939, vent stoppage of buildings. As a result of the continuous application of these rat control measures it has been found that rat proofing and later vent stoppage are undoubtedly the most effective permanent rat control measures. The other control measures, although effective, are either temporary or secondary.

Inasmuch as every building presents a separate problem, no attempt will be made here to outline the many details of rat proofing buildings other than to give briefly a few general details as applied in the Georgia Rat Control Program. The general details of rat proofing applied consisted of protecting or closing openings in exterior walls such as ventilator and incidental openings with galvanized, perforated or expanded, metal, concrete or masonry; closing openings around pipes and wires with galvanized metal collars or cement; flashing the edges of wooden floors that were elevated above the ground with galvanized sheet metal, or replacing low, wooden floors with concrete; protecing the lower edges of doors with galvanized sheet metal; and eliminating or protecting all harborage formed by enclosed spaces inside of buildings, such as are commonly found in fixtures, equipment, double walls, ceilings, etc.

Of the several hundred buildings surveyed for rat proofing, recommendations as submitted to the building owners or tenants were not always complied with in full. This was due to the fact that merchants were reluctant to go to any additional expense of rat proofing their establishments above that amount which gave a marked reduction in rat infestation. In most cases, however, sufficient work was done to render the buildings free of rats.

Municipal governments are unwilling to give any financial assistance to building owners for rat proofing unless in case of emergencies, due to bubonic plague or outbreaks of typhus fever, as it is felt that rat proofing constitutes improvement to private property; consequently, the cost of rat proofing is paid by the owner or tenant of each business establishment. On the basis of several hundred business establishments rat proofed as a result of this program the cost of materials and labor ranged from $15.00 to about $100.00 per business establishment, with an average of approximately $25.00. Although the cost was small in rat proofing many business establishments, it was prohibitive in some instances, especially in old buildings, where major repair work was needed.

The average merchant or building owner has the impression that rat proofing entails an expensive outlay of funds. Due to this fact, as well as to the results of observations and studies made concerning the application, effectivenes, and cost of rat proofing, that part of rat proofing which applies only to the closing or protecting of openings in exterior walls of buildings to prevent the ingress of rats is termed "Vent Stoppage."

Vent stoppage is effective, inexpensive and easily applied; however, in order to insure the most effective results from vent stoppage, it should be applied to all adjoining buildings in a given area. The reason for this is that frequently in old buildings with low wooden floors, openings exist in the foundation walls through which rats may travel from one building to another. In addition, shallow foundation walls between buildings enable rats to easily burrow under the walls and traverse a series of buildings. The cost of correcting these conditions would be prohibitive in most cases, due to the expense of business interruptions, removing floors, fixtures, equipment, etc. In buildings having basements where foundation walls may be inspected, vent stoppage may be applied effectively. Openings such as defective or abandoned ventilators, as well as unprotected openings in exterior walls, around pipes and cables, and in deteriorated walls, serve as the main lines of travel for rats between food supplies in adjoining buildings and alleyways.

In practically all communities there will be found some buildings in which vent stoppage, as well as rat proofing, is prohibitive due to the necessity for major repairs. In any case, vent stoppage, which in reality is the first line of defense against rat invasion of buildings, can be applied more easily and with less expense than rat proofing. It is applied to buildings having masonry walls by installing galvanized expanded metal of 18 gauge or heavier, with openings not exceeding ½ inch, in sidewalk and wall ventilators; the protection of doors, especially rear doors of buildings, by installing galvanized sheet metal of 24 gauge or heavier on the lower edges; and by installing galvanized wire cloth of ½ inch mesh, 19 gauge or heavier, over the entire height and width of windows that are close to the ground on the sides and rear of buildings. Miscellaneous or incidental openings, consisting of those through which pipes and cables pass, and those caused by deteriorated walls, are sealed with masonry or concrete.

In the case of frame structures, often used for business establishments in small cities and towns, vent stoppage is usually more expensive than for buildings constructed of masonry walls. Buildings of this type having low wooden floors, must be protected by installing a curtain wall of masonry or galvanized sheet metal around the entire perimeter of the building and to a depth not less than 24 inches below the surface of the ground and properly fastened to the building, thus preventing rats from gaining entrance into the enclosure. All other openings, such as doors, pipes, wires, and low windows, are protected in a similar manner to that prescribed for buildings having masonry walls. In addition, frame

structures, used as business establishments or dwellings with wooden floors about 18 inches or more above the ground and with the space between floor and ground open on all sides, vent stoppage is applied by protecting all pipes that pass through the ground floor with heavy-gauge, galvanized, metal collars and closing any opening that may be accessible to rats at the floor beams and wall studs.

Vent stoppage, like rat proofing, may be applied to new construction at very little, or at no additional expense. The main factors involved in new construction are foundation walls which should extend to a depth of not less than 24 inches below the outside ground surface; and openings, such as doors, ventilators, around soil pipes and cables, protected in the same manner as for existing structures.

Vent stoppage has been applied in about 21 cities and towns in Georgia, ranging in population from about 900 to our largest city of about 300,000. Approximately 2,000 business establishments have been completed at a cost for materials of less than $5.00 per business establishment.

Immediately following the installation of vent stoppage an increase in rat activity will be noted in buildings. This activity is due to the cutting off of the natural communication channels of rats between buildings and other outside sources of food supply. It is therefore necessary to use some method of rat extermination in order to quickly eliminate the destructiveness of rats blocked within the buildings. In non-food handling establishments, it has been found that after the completion of vent stoppage and in the absence of any rat extermination, rats were found dead after a period of about two weeks. The rats undoubtedly died from the absence of food and water. In food handling establishments vent stopped, a part of the rat population blocked within the buildings will survive for an indefinite period of time with a population in direct proportion to the available food supply and harborage which in most cases have been far below the normal rat population prior to vent stoppage.

Vent stoppage, like rat proofing, does not insure against the invasion of rats into buildings by accidental means, such as by shipped merchandise and through doorways when doors remain open part of the day or night. Due to this fact occasional trapping or other methods of rat extermination must be employed in addition to the periodical inspection and maintenance of vent stoppage in order to keep establishments free of rats.

Rats Serve As Pilots For Cattle

Rats are teaching the cattlemen of Florida how pasturage should be improved and nutritional deficiencies corrected. A few months on a ration will produce results in rats that require years to establish with steers and cows. When cattle graze in a pasture deficient in copper, their hair bleaches and they suffer from anemia, exactly as do rats fed on a diet lacking in copper. In one case a cow a year and a half old weighing only 275 pounds and suffering from a natural nutritional anemia was fed one-half a gram of cobalt in two doses, one week apart. She gained weight at the rate of ten pounds a month and now weighs 425 pounds. Half a gram of cobalt is, of course, a tiny dose; it is given in the form of salt, the only form in which it can be assimilated. The good effect of the administration of cobalt was first discovered by Dr. E. J. Underwood of West Australia.

—*N. Y. Times.*

Few things more reveal the character of a man than what he does for amusement.

—Sir Joshua Reynolds.

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Mothproof Test Revived

A REVISED proposed method of test of fabrics and yarns for resistance to moth and other insect damage has been drawn up by a joint committee of the American Society of Testing Materials working with the American Association of Textile Chemists and Colorists, and the National Association of Insecticide & Disinfectant Manufacturers. The method given here is a proposed revision of the method formerly published and which was discussed at a meeting of the joint committee on October 17 in New York. F. W. Fletcher of the Dow Chemical Co., chairman of the Moth Proofing Committee of the N.A.I.D.M., represented the insecticide industry on the joint committee. The revised method follows:

Scope

1. This method of test covers the procedure for determining the resistance to insect pests of treated fabrics or yarns which contain wool or other susceptible fiber. The term "inect pests" shall be construed to include moths and carpet beetles.

Test Specimens

2. (a) Fabrics—At least two test specimens, 25 mm. (1 in.) square, shall be cut from widely spaced portions of the fabric to be tested.

(b) Yarns—Test specimens shall be prepared by winding the yarn on a piece of cardboard 25 mm. (1 in.) square. The surface of the cardboard shall be substantially covered by the yarn. At least two specimens of each yarn shall be so prepared.

(c) Control Specimens — A specimen of pure undyed wool or camel's hair fabric, 25 mm. (1 in.) square, shall be exposed under the same conditions as the test specimens. A specimen of the untreated fabric or yarn similar to the treated test specimen may also be exposed if desired.

Note: It is hoped that standard fabrics suitable for control specimens will soon be made available for purchase from the Secretary of the American Association of Textile Chemists and Colorists, Lowell Textile Institute, Lowell, Mass.

Larvae

3. (a) The larvae of the black carpet beetle (Attagenus piceus Oliv.) shall be used.

Note—The larvae of the black carpet beetle are hardier and therefore better suited for test purposes than the larvae of the webbing clothes moth. Experience has shown that if a treated fabric resists attack by the larvae of the black carpet beetle, it will also resist the clothes moth.

(b) All larvae shall be active and shall range in weight from 4 to 8 mg.

(c) Ten larvae shall be used for each test specimen. These larvae shall preferably include some which are near the 4 mg. limit, some of medium size, and some near the 8 mg. limit.

Procedure

4. (a) Each test specimen shall be shaken as described in paragraph 5 (c) to remove any loosely adhering dirt or dust, and placed in a suitable open top container, such as a petri dish or a widemouth pint glass jar. The larvae shall then be placed on the surface of the fabric or yarn and the top of the container shall be covered with a suitable screen or cloth which will keep out dust but not exclude air.

(b) The containers holding the test specimens shall be placed in an incubator and maintained at a temperature of 80°-5° F. for a period of 30 days. Light shall be excluded during the test and the relative humidity of the atmosphere shall not be less than 30 per cent nor greater than 70 per cent.

Examination

5. (a) The extent of the damage to the specimens of fabric or yarn shall be determined by visual examination, quantity of excrement deposited, and the number of larvae remaining alive.

(b) In the visual examination, the following evidences of damage shall be looked for:

(1) holes in the specimens, and

(2) breaking and shearing of fibers.

Note—In the case of carpets where size is present on the back, the examination and reporting of damage shall be confined to the pile.

(c) The quantity of excrement deposited, shall be determined by freeing it from all loose fibers, cast skins or exuviae, and larvae and weighing. This may be accomplished by removing the test fabric from the container, holding it with the exposed side facing downward over a piece of glazed paper, grasping it on opposite sides and pulling back and forth between the hands until all loose material, excrement, and larvae are transferred to the paper. In the case of pile fabrics and yarns, it is advisable to tap the back of the specimen to free it from all adhering excrement. Any loose residue in the container after the removal of the specimen should also be transferred to the glazed paper. The material collected on the paper shall then be transferred to a No. 3 Gooch crucible, and by repeated tapping of the crucible, the excrement shall be sifted through the perforations into a suitable dish, and finally weighed on an analytical balance.

Report

6. (a) The evidences of damage, the number of larvae remaining alive, and the weight of the excrement in milligrams shall be reported for each specimen of the treated sample and for the untreated control specimens.

(b) In the absence of visual damage, the specimen shall be considered satisfactorily resistant to moths and carpet beetles if a quantity of excrement not over 6 mg. is deposited by the larvae, provided that under the same conditions a quantity of more than 15 mg. of excrement is deposited on the control specimens. It shall be understood that this statement applies only to the mothproofness of the specimen under the conditions of the test.

Note — Attention is now being given to the development of procedures for determining the retention of resistance to moths by treated fabrics or yarns under conditions of ordinary use.

Reprinted for the December issue, 1940, of Soap & Sanitary Chemicals.

Auto Is Wrecked by Termites

Oxford, N. C.—John Ellington blamed the destruction of his automobile on—termites. The car was parked in his driveway. A tree fell and crushed it. The tree, he said, had been bored away by termites.

—*N. Y. Times.*

N.A.I.D.M. Holds 27th Mid-Year Meeting

June 9 and 10, 1941—Edgewater Beach Hotel, Chicago

Before a representative group of its membership and guests, the N.A.I.D.M. 27th Mid-Year Meeting got under way on the morning of June 9, at the Edgewater Beach Hotel, Chicago. An interesting business as well as social program was covered. Among the subjects discussed were:

"What the Hospital Wants in Sanitation Supplies," C. O. Auslander, Purchasing Agent, Michael Reese Hospital, Chicago, Ill.

"Evaluation of Liquid Insecticides Against Crawling Insects"—Final report N.A.I.D.M—Ohio State University Project — Dr. F. L. Campbell, Professor of Entomology, Ohio State University, Columbus, Ohio. (Colored movie film showing methods used in conducting this work was shown by C. S. Barnhart, Ohio State University.)

"Control of Household Insects with Smokes Containing Pyrethrum, Derris, and Certain Synthetics," by Dr. Lyle D. Goodhue and Mr. Wm. L. Sullivan. Presented by Dr. R. C. Roark, in charge Insecticide Investigations, U. S. Dept. of Agriculture, Washington, D. C.

"A Twenty-Year Picture of Pyrethrum Prices and Scientific Investigations," Dr. C. S. Corl, Allaire, Woodward & Co.

"Buying Maintenance Supplies," C. N. Skidmore, Purchasing Agent, Northwestern University, Chicago, Ill.

"A Model Insecticide Law," Henry C. Fuller, N.A.I.D.M. Consultant, Washington, D. C.

"Mothproofing Investigations," F. W. Fletcher, Dow Chemical Co.

"Deterioration of Powdered Pyrethrum," Dr. Alfred Weed, John Powell & Co.

Colorado Insecticide Act Passed

House Bill 454 has been passed by the Colorado legislature. It takes effect as of July 1, 1941. Insecticides manufactured or distributed within the state must be registered with a fee of $2 charged for each product or brand so registered though payment of a fee of $25 covers registration of all products or brands by any one manufacturer or distributor. Regular registration blanks may be had.

Humming birds do not live entirely on nectar—they consume quantities of insects. —*Science News Letter.*

We are sorry to note life is evidently not one sweet song, or "beer and skittles"—even for humming birds.

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America's Sanitary Police

By JAMES N. MILLER

EDITOR'S NOTE: *The following article appeared in the May, 1941, issue of Hygeia. The United States Public Health Service offers recommendations for an "Ordinance and Code Regulating Eating and Drinking Establishments." The material is in mimeographed form and issued June, 1940. The official score cards as used by the Department of Health of Allentown, Pennsylvania, follow closely the suggestions of the U. S. Public Health Service recommendations. Health Officer Dr. Joseph R. Bierman of Allentown comments as follows as to the program in Allentown, Pennsylvania: "We feel that locally our semi-public and public eating and drinking establishments have stepped up in hygiene and cleanliness since the inception of the official score system and letter "A" rating started with October 1, 1939. Prior to the issuance of the letter "A" the majority of such places remained indifferent and reluctant to any recommendations. Today, however, they must meet the requirements within 85 points at least. Once all have an 85% rating the official figure can be increased to 90 points to qualify for a letter "A." At the end of the article we submit the scoring card that is used for Restaurant Hygiene. A somewhat similar form is used for soda fountains.*

NOW comes a new type of policeman into the everyday American scene. Under a plan recently inaugurated by the United States Public Health Service, each town and city of 5,000 inhabitants or over would organize a corps of "sanitary police" who would inspect all eating and drinking places and rate them at regular intervals with a score sheet. Those that merit a certain high score would be given an approval card to display to their patrons.

This novel idea is part of a national standard for cleanliness and purity in all restaurants and drug stores, and the federal health specialists urge all communities to adopt it.

The plan is of tremendous interest and importance to every one of us for it means, in the long run, improved health for the entire nation. Many cities have almost completely ignored the public health problems in eating establishments, especially from the standpoint of germ-proof plates, silverware, drinking glasses and cooking utensils and disease-free food handlers. However, all these items of sanitation have a real public health significance and are about the same in all towns and cities. The new uniform regulation, designed to cover every phase of purity, will offer a solution to one of America's most important national problems.

There's no force involved. The plan permits each eating place to bring itself up to standard. No restaurant wants to wear the public label of "unclean." The "sanitary police" inspector carries a bag filled with regular equipment including a thermometer to test dishwater temperature, and a swab for taking a bacteria count of glasses and dishes. He inspects for cleanliness, ventilation, refrigeration, odor and garbage.

The new plan is well past the experimental stage. Indeed, as a test, several cities have been trying out the sanitary police idea for some months, notably Allentown, Pa., and Baltimore, Md. The results are gratifying and these two cities and others in New England have already adopted the plan as a regular procedure.

Serving of improperly refrigerated foods, a common cause of food poisoning, is one of the main situations being investigated by the Public Health Service. In this connection it is good news that most of the leading food storage concerns have expressed their willingness to cooperate with government authorities. Take a striking example: In a western city several months ago a wholesale catering establishment sent 1,000 spoiled chickens to a banquet. Luckily, one of the chefs discovered the unpalatable state of the fowls. Laboratory tests revealed that had the guests eaten the chickens all of them would have been poisoned and some of them probably would have died.

However, the wholesale catering company took back the fowls and gave every evidence of planning to make another try at selling them. They even tried to take the chickens to a cold storage plant to be kept pending a sale; but storage men refused to accept them because of their obviously spoiled condition.

Better Mouse Trap?

Walt Disney didn't make a better mouse trap than his neighbor, but look what he did for the mouse!

Under the sanitary police plan at Allentown, the special officers inspect all eating places and rate them four times a year with a score sheet. Those that get a score of 85 points out of 100 win a large card bearing the letter "A," which is displayed to their patrons.

The card, six by eight and a half inches, has a special leatherette holder and is displayed in a prominent place in a window or near the entrance. It declares that the establishment has been approved by the local bureau of health.

Never does the city punish places that fail to reach the "A" standing. It lets the public do that by teaching them to patronize only those places that have the A rating. In the scoring, 90 per cent of the inspecting is done in the kitchen. However, some 32 items must be checked for cleanliness in dining rooms and soda bars. Even if the establishment scores perfectly in every other item, it can not get an A rating if animals or other pets are allowed in the kitchen or service room.

The new system is now enthusiastically received and the city points with pride to its restaurants. Allentown has 450 public eating and drinking places. After the first inspection, 241 won their A rating. Baltimore, with a somewhat similar system, scores eating places with ratings A, B and C. Allentown decided to use only the single rating because, according to Dr. Joseph R. Bierman, city health officer: "We thought it would be easier to educate the public to understand the single rating. The A represents not only a high score but it is a big standard for approval."

Dr. Bierman's office keeps the score sheets in a file and, if the restaurant is up to standard, issues the A cards. Cards are issued twice a year and the colors are changed like automobile licenses. The local bureau of health also provides miniatures of the rating card, which the restaurant may put in its menus. Score sheets contain 87 items to be checked by the sanitary police. Most of the items count 1 point, 7 count 2 points, and 1, labeled "no pets allowed," counts 4. The bureau has separate score sheets for soda fountains, with 52 items to be checked, many on spe-

cialized soda fountain equipment and supplies.

Only 5 men comprise Allentown's sanitary police force. Their patrol area is divided into 4 districts, North, South, East and West, and one officer is held responsible for the promotion of sanitary conditions in each district. One officer specializes in inspecting and rating the eating and drinking places. The others assist in enforcing the plan by making visits to restaurants for additional inspections. Those places that keep high standards aren't bothered much, but those that lag behind are checked at least once a week.

The rating cards are specific and the total score of the various items gives the rating. In the kitchen, they check cleanliness of walls, floors, equipment, refrigeration and drainage. Refrigeration must not be over 45° F. Dish water must be 135° F. with soap and 170° F. without soap. Garbage cans must be clean, covered, emptied daily. Storage rooms must be kept clean, with meat, milk, fruit, vegetables and cereals in separate compartments.

Although Richmond, Va., hasn't organized a regular corps of sanitary police, the city has made some interesting sanitation surveys in recent months. In the latest one, tests were made on public drinking glasses in soda fountains and restaurants. They showed that a higher percentage of glasses were being sterilized than ever before.

A total of 80 per cent of the 45 establishments visited were found to have glasses meeting health department standards of satifactory purity. This standard, approved by the United States Public Health Service as one that should be followed throughout the nation, permits a bacteria count of only 500 on the rim of each glass. Three hundred of the places visited showed less than 100 bacteria per rim, Dr. W. Brownley Foster, director of public welfare, announced.

A major phase of the new Public Health Service plan is to urge all cities to put sharper teeth in present campaigns to keep persons with infectious diseases from handling food and drink in eating places. Any employee who doesn't have a local health department certificate showing him free of disease should be discharged immediately, the federal officials point out. Food and beverage handlers include waiters, waitresses, cooks, dishwashers, fountain workers, or any one else preparing or serving food or drink. Both part-time and full-time employees should have certificates.

In Flint, Mich., Dr. George Hays, executive health officer for the city, recently completed a thorough study of food sanitation conditions.

"Within the last year," he points out, "there were more than 100 persons made ill by consuming food at a large gathering. Fortunately no one died, but many had to stay home from work while recovering from a serious intestinal disturbance (probably caused by diseased food handlers). The organization responsible for serving the food was alert and provided medical care for all those that submitted doctor's bills."

This and similar outbreaks could be handled only by a thorough knowledge and practice of the proper storage and preparation of food, according to the United States Public Health Service. The most frequent cause of food illness outbreaks, the federal experts point out, is meats and custards. Meats undergo putrefaction when not properly refrigerated and custards are an almost perfect medium in which germs causing

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3 oz. Estate Tubes
8 oz. Jumbo Tubes
5 lb. Cans
30 lb. Pails
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MOUNT VERNON NEW YORK

intestinal disturbances may grow in profusion.

The chemical analyses necessary to determine the cause of food poisoning generally can be completed only days and weeks after the outbreak has occurred. All this trouble, expense and worry could be prevented if every one knew how to handle food properly.

The most common disease spread by careless food handling is the common cold. Only by adequate knowledge of how to treat the spread of colds by personal hygiene and by sterilization of dishes and glasses can the high incidence of this infection be lessened. The two major factors in the transmission of disease by foods are the food handler's knowledge of what to do and his desire and that of the eating-place proprietor to do those things that prevent illness and promote health—as well as better business.

Examination of the Restaurant Hygiene Periodic Score Sheet for rating semi-public and public eating and drinking places, shows points are scored for adequate vermin and fly control; Periodic Score Sheet for soda fountain and ice cream parlors, however, omits all reference to vermin or fly control, nonetheless, we think, such measures properly belong therein. We need hardly dilate on the unusual significance, for the public as well as the Pest Control Industry of the "sanitary police" program recently inaugurated by the forward-looking United States Public Health Service, which Mr. Miller describes in such excellent detail.—EDITOR.

CITY OF ALLENTOWN **RESTAURANT HYGIENE** BUREAU OF HEALTH

PERIODIC SCORE SHEET FOR SEMI-PUBLIC AND PUBLIC EATING AND DRINKING PLACES

PROPRIETOR _____ ADDRESS _____

		1	2	3	4
	KITCHEN 25 POINTS				
2	Location				
2	Washable Garments				
2	General Cleanliness				
1	Floor Clean				
1	Walls Clean				
1	Flat Ceiling				
1	Suction Fans in Order				
1	Screened Windows and Doors				
1	Proper Ventilation				
1	Clean Stoves				
1	Clean Tables				
1	Clean Equipment				
1	Clean Utensils				
1	Refrigeration Separate				
1	Refrigeration Not Over 46				
1	Dishwashing Machine				
1	135° With Soap				
1	170° Without Soap				
1	Drainage				
1	Pastry Room				
1	Free from Foul Odors				
1	Free from Vermin and Flies				
	GARBAGE 4 POINTS				
1	2 Sets of Cans				
1	Covered Cans				
1	Cans Washed Clean				
1	Cans Removed Daily				
	STORAGE 10 POINTS				
1	Location				
1	Floor Clean				
1	Walls Clean				
1	Windows				
1	Adequate Lighting				
1	Free from Foul Odors				
1	Free from Flies				
1	Free from Vermin				
1	Free from Rubbish				
1	Stock Shelved and Covered				
	REST ROOMS 10 POINTS				
1	Employees				
1	Men Patrons				
1	Women Patrons				
1	Paper Towels				
1	Soap either Powder or Liquid				
1	Adequate Lighting				
1	Odors Controlled				
1	Clean Floor				
1	Clean Walls and Ceiling				
1	Adequate Ventilation				
	DINING ROOM & BAR 35 POINTS				
2	Location				
2	Washable Garments				
2	General Cleanliness				
1	Garment Closet Neat				
1	Floor Clean				
1	Walls Clean				
1	Ceiling Clean				
1	Fresh Air Fans				
1	Screened Windows				
1	Screened Doors				
1	Proper Ventilation				
1	Clean Liquor Bar				
1	Clean Steam Bar				
1	Clean Chinaware				
1	Clean Glassware				
1	Clean Silverware				
1	Clean Table Linens				
1	Clean Towels				
1	Glass Cases for Pastries				
1	Cereal Containers				
1	Running Hot Water				
1	Water Cooler				
1	Paper or Linen Napkins				
1	Butter Serving Cold				
1	Milk Serving Cold				
1	Method of Sweeping				
1	Individual Paper Cups at Fountain				
1	Adequate Chairs (1 Per 4 Per Day)				
1	Tables Tidy				
1	Nuisances & Odors None				
1	Flies & Vermin None				
1	Adequate Lighting				
	FOOD STORAGE 8 POINTS				
2	Meats Separate Compartment				
2	Milk Separate Compartment				
1	Fruits Separate Compartment				
1	Vegetables Separate Compartment				
1	Cereals Separate Compartment				
1	Pastries Separate Compartment				
	DISPLAY 8 POINTS				
2	Letter Rating Visible & Neat				
2	Health Certificates Available				
4	No Pets Allowed				
	Total Rating				
	No. of Employees				
	No. of Health Certificates				

Type of Business

Scored by

1st
2nd
3rd
4th

Approved By _____
Health Officer

Can A Miller Afford to Handle His Own Pest Control?

By MAX RUKIN, *Chicago, Ill.*

EDITOR'S NOTE: *As reprinted from April, 1941, issue of the American Miller.*

I SUPPOSE that the title sounds like a leading question? Well, it is. We've been on the commercial end of this pest control business for over 20 years and are convinced that a miller is saving money when he turns his insect control problem over to a commercial operator. You want to know why? Here are a few reasons—

(1) It takes time to do a fumigation and do it right. The mill should be properly prepared, cleaned, windows and doors sealed and any big cracks caulked. All that work represents man-hours of labor. With production stepped up as it is in these troublous times, every man is needed for making flour, without having more overtime added for bug killing.

(2) It is a miller's chief business to make flour. To do that job well, he keeps posted on the latest developments in machinery, methods of production and selling. He tries out those he thinks would work best in his mill. That's a full time job in itself. You can't except to spend that much time again on handling an insect control job as well. He'll probably call some milling friend and find out what he is using, and buy 50 gallons of the same chemical. Or he may stick to the methods of pest control his father followed. How often, in calling through the territory, have I found millers using Chlorpicrin to fumigate grain by an antiquated method that was discarded by the manufacturers years ago. Or a miller measuring out sulphuric acid and eggs in crocks and placing them anywhere in the mill that happened to be handy, with no thought as to where the most trouble was and where his fumigant would do most good. It's a fumigator's business to keep up with the latest trend in fumigation methods, as well as in use of fumigants themselves.

(3) The U. S. Department of Agriculture is constantly endeavoring to find more efficient and more economical means of controlling insects in flour and food plants. The commercial pest control operator cooperates in this effort, trying out new chemicals, and combinations of old ones. While HCN is still the most efficient general fumigant, a number of new products are coming into the field constantly. Some of them get a lot of publicity but fade out when they are put to practical commercial tests. Others are no doubt here to stay. A miller can't afford the time or risk to experiment with the different

(Continued on page 19)

fumigants and means of applying them. That's up to the commercial pest control companies.

(4) A commercial fumigator is experienced in the use of dangerous gases. No matter what precautions are followed, fumigation is a dangerous business. A miller who fumigates once a year is less apt to observe all safety precautions than one who works with poison gas constantly and knows what he is up against. In looking over the record of accidents in mill fumigations, you'll find that 99% were cases which did not involve pest control companies but where fumigations were being conducted by the mill's own organization. Besides keeping its fumigating staff constantly on the alert and watchful against any carelessness, the established pest control company carries adequate insurance to provide for any accident. Such insurance is not usually carried by the milling firm. One accident can knock out all the savings on fumigation over a period of years.

(5) But the main consideration is profit. A miller's success is measured by the amount and quality of flour he can turn out. That is what he is being paid for, and not for how many bugs he can kill. Too often, a mill considers its profit and loss on a miller from his production record, without taking into consideration what **other** jobs the miller is performing. If he has the insect control problem thrust on him, that's so much less time and energy he can put into his flour production.

So, **can** a miller afford to handle has own pest control? Millers of our acquaintance have proven time and again that they save money by turning over this phase to a commercial pest control operator. You'll find a good pest control operator within calling distance of every mill.

Exterminator Given $25 Fine

First prosecution in City court under provisions of the municipal ordinance requiring exterminators to obtain a license and a permit from the building division resulted Wednesday in Gordon Berry, 37, Hollywood, an employee of the Southern Exterminating Co., of that city, being fined $25 and costs. The company also lost the $125 fee charged J. H. Storen, 2427 S. W. Nineteenth terrace, when he stopped payment of a check in that amount when he allegedly learned that termites continued their existence at his home, testimony showed.

—Miami, Fla.

"Even doubtful accusations leave a stain behind them."

The Preoccupied Reporter

Of the two rodents that exerted a retarding influence on the world this week—the short-circuiting squirrel that held up four New Haven trains and the mouse that stopped judicial processes in the Queens County Court—Rodent No. 2 will probably be the public's favorite. Assistant District Attorney Schwaeber was thinking about law on the day in question. Judge Colden was on the bench. Mr. William Alexander, a reporter for The Long Island Daily Press, appears to have been seated at the table reserved for counsel, although on this point news dispatches are a little vague. A jury was solemnly in the box.

At this point the prosecutor found himself disturbed by a strange noise that had no place in a court of law. It might, by a stretch of the imagination, have been likened to the sound of the sawing through of jail bars. Mr. Schwaeber looked under the counsel table and saw a mouse calmly gnawing on the sole of Reporter Alexander's shoe. Judicial action was prompt and decisive. A recess was called, the judge ordered attendants to catch the offender, which was executed, and the case went on, with the jury told not to be swayed by "external circumstances."

—*N. Y. Times.*

Insect Population of the Air

"After carrying on researches in airplanes equipped with traps, scientists of the U. S. Department of Agriculture estimate there are 25,000,000 insects in the air above each square mile of the earth's surface."—From C. P. I. Circular, May 26, 1941.

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Studies on Foodstuffs Fumigated with Methyl Bromide

By H. C. DUDLEY, *Associate Chemist*; J. W. MILLER, *Pathologist*; P. A. NEAL, *Passed Assistant Surgeon, and* R. R. SAYERS, *Senior Surgeon, United States Public Health Service*

THE use of methyl bromide as a fumigant for the control of insect pests has increased markedly within the past 3 years. Control of the spread of the Japanese beetle has occasioned initiation of the use of methyl bromide in fumigation of railroad cars containing fresh vegetables going out of the Japanese beetle quarantine area. During the fumigation seasons of 1938 and 1939, several thousand carloads of fresh vegetables were treated by methods developed and approved by the United States Department of Agriculture (1). This type of fumigation applied to dried fruits has increased to such an extent that large quantities of such produce originating in the western fruit-growing states have been so treated.

The effectiveness of methyl bromide at moderate concentrations in causing death of many insects in nearly all stages of development, and the ease of handling and operation, makes the increased use of this fumigant probable (2). The annual production of methyl bromide in the United States during the past 5 years has increased more than sevenfold, owing primarily to the rapid increase in fumigation procedures developed and placed in commercial use during this time.

Two public health problems are encountered in the use of this fumigant: First, the dangers arising from the exposure of fumigators and others to the fumigant; and second, the effect on the consumer of the residue of fumigated foods. In order to study certain phases of these problems the United States Public Health Service has been carrying on studies with methyl bromide for the past 2 years, in cooperation with Dr. Lon A. Hawkins, Chief of the Division of Control Investigations, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture.

This study deals primarily with possible injury to consumers of foodstuffs fumigated with methyl bromide; as an addendum to this paper, there is given a discussion of the precautions which should be considered when using methyl bromide as a fumigant, together with recommendations which have been found effective for its safe use.

The problem of the consumer hazard of methyl bromide has been approached from two angles: First, investigation of foodstuffs, with determination of the rate of release of methyl bromide and the amount of residual bromide following fumigation; and second, the physiological and pathological changes induced by consumption of methyl bromide-treated foodstuffs as shown in experimental animals.

Methyl bromide is a colorless organic liquid, having the formula CH_3Br, with a boiling point of 4.6° C., so that at ordinary room temperature it is a gas. The specific gravity of the gas is 3.27 (air=1). The inflammable limits are within a very narrow range, 13.5-14.5 per cent by volume. In the fumigation procedures described later in this paper, and in commercial practice, the concentration of methyl bromide is 1 per cent, or less, by volume so that the fire or explosion hazards are negligible. The use of methyl bromide as a fire extinguisher fluid, especially in portable or automobile fire extinguishers, is rather widespread in Europe. Recently methyl bromide fire extinguishers have been placed on the market in the United States.

The methyl bromide now supplied in commercial quantities is of high purity, being more than 99 per cent methyl bromide. Methyl bromide has a slight aromatic odor in high concentrations. At low concentrations, which may still be toxic, the gas has no odor.

Summary and Conclusions

A method of analyzing fruits and vegetables for total bromides following fumigation with methyl bromide has been developed. Results indicate that the amount of methyl bromide (determined as bromide) absorbed by the produce during fumigation is several times the normal bromide content. In most cases the fumigated material showed a drop in bromides after aeration. Dried fruits, fresh fruits, and vegetables absorbed minor quantities of the fumigant. The foodstuffs which absorb greater amounts of the fumigant include milled grains, cheese, nuts, and nutmeats. The adsorptive capacity of milled grains is due primarily to their greater surface area, while the oily and fatty foods absorb large quantities of methyl bromide because of its solubility in fats.

Feeding experiments with rats show that when excessive (620 to 529 mg. Br/100 gm.) amounts of methyl bromide are present in the food, an increased death rate is produced, gain in weight and activity are reduced, and general health and reproductivity are adversely affected. When rat food containing moderate amounts of bromides (following fumigation at 3 pounds of methyl bromide per 1,000 cubic feet for 24 hours) or when fumigated fruits and vegetables are fed, little or no deleterious effects were noted. Activity, general condition, gain in weight, and reproductivity were normal.

The minimum lethal dose of methyl bromide for rabbits by ingestion is estimated at 60-65 mg. of methyl bromide per kilogram of body weight.

When rabbits were fed on a diet containing excessive amounts of methyl bromide (362 to 256 mg. Br/100 gm.), all animals died in 2 weeks, exhibiting symptoms of progressive paralysis. In prolonged rabbit feeding experiments (52 weeks' duration), the animals were fed on food fumigated at a concentration of 3 pounds of methyl bromide per 1,000 cubic feet (9.36 to 5.55 mg. Br/100 gm.). These rabbits showed little or no deleterious effects. Activity and general condition were normal, but weight increases were 10 to 12 per cent below those shown by the controls.

Rabbits receiving 56 to 71 mg. of CH_3Br per kilo of body weight in olive oil by intubation showed destruction of superficial layers of stomach, duodenum, and, occasionally, the jejunum, with accompanying hemorrhage and hyperemia.

Rabbits fed a mixed diet containing a concentration of 3,865 p. p. m. of methyl bromide showed no changes in the gastrointestinal tract. All were paralyzed prior to death and all showed pulmonary damage. Congestion of cerebral capillaries or focal areas of perivascular lymphocytic infiltration in the cerebrum were found in some of the animals.

Rabbits fed a mixed diet immediately and 24 hours after fumigation with a concentration of 3 pounds of methyl bromide per 1,000 cubic feet showed no resulting pathological damage after 52 weeks' feeding.

Rats fed a stock diet containing 1,550 parts per million and examined at 1- or 2-week intervals for 16 weeks showed no histopathological damage that could be attributed to methyl bromide.

Rats fed pellets containing an average of 6,830 parts per million of methyl bromide for a period of 20 weeks showed nothing of note histopathologically.

Rats fed for 20 weeks with pellets used immediately and 24 hours after fumigation with a concentration of 3 pounds of methyl bromide per 1,000 cubic feet showed nothing of note. Rats fed vegetable diets similarly treated also presented negative pathological findings.

Definite pathological lesions produced in the stomach, duodenum, and jejunum of rabbits receiving high concentrations of methyl bromide in olive oil appear to be of the nature of an acute irritative reaction. The irritation may be caused by hydrolysis of the methyl bromide to hydrobromic acid and methanol, or by a delayed direct action of the methyl bromide because of its partial retention in the oil.

The pneumonia and bronchitis encountered in the rabbits receiving the mixed diet containing a very high concentration of methyl bromide might be attributed, at least to some extent, to inhalation of the methyl bromide retained in the feed, particularly the hay. It could also be considered as an indication of general physical debility, especially in view of the fact that gastrointestinal damage, even though slight, was found in some of these animals. That the rabbits of this group died following paralysis and that slight cerebral changes were found would also suggest that the pulmonary damage was of a secondary nature.

The absence of fat droplets in the cells of the adrenals and liver was conspicuous in the rats and rabbits examined in this study. While an appreciable quantity of fat in the liver of rats and rabbits is generally conceded to be abnormal, at least some is found in a series of animals of this number. Fat droplets in the cells of the adrenal cortex usually occur more frequently in a similar number of animals. No conclusions can be drawn from the data at hand as to the significance of this conspicuous negative finding.

It is also to be noted that the pathological changes, when present, were more marked in the rabbit than in the rat, pointing to the possibility of a species tolerance or resistance.

The lack of appreciable systematic pathological findings in the animals fed foodstuffs fumigated with 3 pounds of methyl bromide per 1,000 cubic feet is significant.

The diets fed to the animals in the tests herein described consisted entirely of fumigated foodstuffs, all of which contained more methyl bromide than is found in similar foodstuffs fumigated by methods approximating present commercial procedures. Thus it seems unlikely that the

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[1]Martin & Tattersfield, Oil, Paint & Drug Reporter, July 31, 1939.

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small amount of methyl bromide or bromide residues on commercially fumigated fresh vegetables and fruits, or dried fruits, is harmful to the consumer.

Acknowledgment

The authors wish to thank Dr. Lon A. Hawkins, Chief of the Division of Control Investigations, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, and other members of the Bureau of Entomology and Plant Quarantine for their cooperation during the course of this investigation; Dr. L. T. Fairhall, Principal Industrial Toxicologist, for his suggestions and aid during the entire study; Mr. Otto J. Dekom, Laboratory Assistant, for aid in the chemical analyses, animal feeding, and preparation of bibliography; Mrs. Barbara H. Caminita for editorial assistance and manuscript preparation, and Mr. E. C. Thompson and Mrs. Anne S. Gerber for preparation of histological material.

The foregoing has been digested from an article which appeared in a recent issue of PUBLIC HEALTH REPORTS. Since the study in question contained much other valuable material and also reference literature, we would urge PCOs and others to send 5c in cash (no stamps) to Supt. of Documents, U. S. Government Printing Office, Washington, D. C., for complete copy. In writing please give title of article and indicate it appeared in December 6, 1940, issue of PUBLIC HEALTH REPORTS. —EDITOR.

Mothproofing Tests

Accelerated laboratory tests have been devised to predict in a matter of weeks the mothproofing potentialities of a particular chemical, but no general agreement on a standard test method has been reached and the term "mothproof" does not stand for a definite measurable value.

The black carpet beetle is well adapted for testing mothproofness. Adults emerge chiefly in March, April, May and June. Ability to withstand starvation and toxic foods is directly correlated with the size of the larvae. They prefer to feed between two surfaces rather than on the exposed upper side. Dead larvae and pupae are frequently eaten. The test where the larvae are confined to the test sample with no other choice of food is the most important one. Three sizes of larvae are recommended for each test. Ten mg. of excrement for 15 larvae for a period of six weeks, was set as the critical point below which a sample may be considered mothproof. Larvae react differently to various mothproofing agents.

Am. Dyestuff Reporter 30, pp. 14 2-5 (1941).

—From SOAP, May, 1941.

"They conquer who believe they can. He has not learned the lesson of life, who does not each day surmount a fear."

—Emerson.

Pest Control Definitely a Job For a Woman

Because Only a Woman Really Understands Household Problems involved, Says Ada Williams, Albuquerque, N. M., PCO

THE phrase, "a woman's place is in the home," has its streamlined counterpart in the Pest Control Industry where the women PCOs, numbering a good baker's dozen—have through their abilities, not only found their "place" in the homes they service, but have earned the respect of the more numerous sex in the "fraternity," as well.

And, as if that were not enough accomplishment, now along comes a newspaper clipping from the **Albuquerque** (New Mexico) **Tribune,** nuggeted with human interest about still another distaff member of the profession — Ada Williams of the Ada Williams Pest Control, with headquarters in that city and operating in 30 towns and cities in New Mexico, Texas, Colorado and Arizona.

Mrs. Ada Williams, reports the "Tribune," is the widow of the late J. C. Williams, railroad builder and contractor, famous for the switchback of the Andes. A Southern woman, born in Virginia, she went as a bride to live in Winchester, Ky., and spent much of her married life in traveling in Europe and South America. In the crash of '29, she lost most of her inheritance, and finally it became evident that she would have to do something to supplement a diminishing income. The dilemma of what to do or not to do, was not long delayed in being resolved; because with true feminine instinct she realized the basic reason for the existence of the P. C. I. as exemplified by the fact that the control of pests was a contribution to the public welfare; and because she believed that pest control was definitely a job for a woman because only a woman really understands the household problems involved, she was soon a practicing PCO.

In preparation, she went about acquiring so thoroughgoing a knowledge of effective detail on pest control procedure that she even can supervise—and does if necessary—fumigation operations.

Princess Kropotkin wrote about her in a recent issue of **Liberty Magazine,** and an amusing paragraph or two by H. B. Henning in **The New Mexico Stockman** was quoted over N.B.C. national hookup on a "strange occupations for women" program. Mrs. Williams has purchased a three-acre homesite, with plans lineated for tennis courts, swimming pool and outdoor dance hall. A new street leading to her estate to be, she intends to name "EL CAMINO DELLA CUCARACHA," "but," she says, "there won't be a cockroach, not a single 'cucaracha' on the street."

And to add to the human interest picture, I am a Roosevelt Democrat, dyed in the wool Southerner, from Kentucky and Tennessee, widow of John Calvin Williams (see Judge Kerr's History of Kentucky) daughter of John R. Garner, Culpepper, Va., proud of my Ancestry and past record of Religious and Charity work in First Baptist Church, Winchester, Ky. Mother of the girl, voted the World's most beautiful, now Mrs. Ray E. Dodge, Dodge, Inc., Los Angeles, Chicago, New York, and one son, John Calvin Williams, Jr., Dodge, Inc., N. Y. and Miami, Fla.

You see my Pest Control is not the only thing of which I boast. Please excuse my "Modesty."

John Calvin Williams, III, seven months old, is Grandmother's Pride and Joy.

Pest Control in the Year 1795

In order to further the control of pests, the Blackbird Law was passed in 1795 making it necessary for Cape Cod swains to kill 12 blackbirds (or three crows) before they could marry.

We were wondering — and since we haven't a copy of the law handy to check— whether a kill of 24 blackbirds (or six crows) entitled a swain to "bigamy," etc.

Quotation for the Month

"When you educate a man you educate an individual; when you educate a woman you educate a whole family."—Dr. Charles D. McIver.

Phenol Formaldehyde Resins in Plywood Give Promising Termite-Resistant Results

A RECENT article by Al Bernsohn reports: "Plywood's been kicking around the shops and factories for a long time now. The old-timers ranked it 'way down low as a construction material. They remembered all too well how unreliable it was, how it came apart and cracked and even honeycombed when it was trusted to do important work.

"Not many years ago a group of experimenters came along with the idea of combining synthetic resins with carefully selected veneers. The resins made a much more reliable bonding material than the reversible glues that released their hold when they became wet, or the smelly blood albumin of old-style plywood. They combined the orderly cellular arrangement of selected wood with the priceless characteristics of some of the plastics: water-, fire-, fungus- and **termite-proof.**

"Early experiments with the new material yielded pretty impressive results. A section of the wood left under water for two years became waterlogged, but the adhesive didn't relax its grip. The synthetic resins gave the plywood better rigidity; the veneer gave it high vibration absorption. Test after test pointed to the new plywood as a construction and manufacturing material of the future. Many who had scoffed became sold on the stuff; but there were the skeptics who still doubted, even up to a few months ago, until . . .

"Roaring flames lapped through the California State Building at the Golden Gate Exposition. The entire interior was gutted. Slowly the conflagration was brought under control. And as the last few sparks were fading and fire trucks started to leave the scene construction experts arrived, attracted by the preposterous news that walls of thin plywood remained standing even after the heavy studding was burned away. They investigated. Three-ply Douglas fir plywood bonded with a synthetic Cresol-formaldehyde was the material of which the walls were made—and the walls remained intact. In places these walls stood alone supporting heavy vertical loads. The fire had burned through the plywood layer by layer without blistering the next one enough to let enough air through to cause combustion.

"The new plywood's stock was boosted by this unplanned demonstration. Today it is one of the most popular structural materials for pre-fabricated houses. Its strength, light weight, insulating properties and ease of handling gave it an early edge over steel. The properties of the synthetic resin binders (such as phenol formaldehyde) in resisting most of the wood's common enemies, play a hefty part in plywood's popularity in this construction field."

It is our understanding, that tests by one of the Government agencies, of phenol formaldehyde in plywoods, give promising results. After about two years in the ground, the plywoods have not yet been attacked by termites. We believe this is too early to draw final conclusions but merely mention this as a trend.

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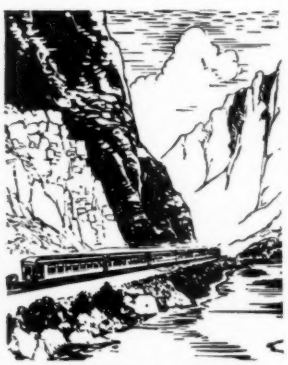

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Fumigation Tests in Open Tobacco Warehouses

CURED tobacco is stored in warehouses for long periods in order to obtain a satisfactory degree of fermentation, or aging. These warehouses are given the general designations of open and closed types. The closed warehouse is constructed of brick, concrete, or boards, tightly fitted, with a sufficient number of ventilators along the walls to provide the desired aeration of the tobacco. These buildings lend themselves to temporary sealing without great cost, and experimental work conducted during the past few years has developed an effective method of fumigation for hogsheads and cases of tobacco.

The open type of tobacco warehouse, however, is constructed with corrugated sheet metal walls, concrete or earthen floors, and a composition roof made of tar and gravel. The sections are usually contiguous, with brick firewalls between. Two or more louvers extend along the walls, which give a high degree of aeration and provide conditions of temperature and relative humidity closely approximating the outside air. A typical section of open warehouse is 150 by 103 by 15½ feet, having a total volume of 239,475 cubic feet. A section of this size has a storage capacity of about 1,600,000 pounds of tobacco.

Up to this time the only insect-control measures developed for the tobacco moth, **Ephestia elutella** (Hbn.), and the cigarette beetle, **Lasioderma serricorne** (F.), in open warehouses are insect traps and applications of pyrethrum powder. During September and October, 1939, the first tests were made of the effectiveness of sealing and fumigating the open type of warehouse with hydrocyanic acid.

In order to retain an effective concentration of hydrocyanic acid in tobacco warehouses even for a few hours, it is necessary to seal all openings temporarily. These openings include doors, louvers, and small cracks along the walls where pieces of sheet metal are riveted together. In these tests the doors were temporarily sealed with a waterproof reinforced building paper, the louvers with a waterproof canvas weighing 9.93 ounces per square yard, and the spaces around the rivets and other openings with a plastic insulating material. Standard quarter-inch copper pipes and nozzles were installed for the application of the hydrocyanic acid.

Three tests were conducted in the open warehouse, using the fumigant at rates of 8 and 6 ounces per 1,000 cubic feet with an exposure of 24 hours. These concentrations and this exposure were considered sufficient to kill all insects at or near the surface of the tobacco, with no appreciable penetration deeper than about 1 inch into the tobacco. The results were determined by the mortality obtained in test lots of eggs, larvae, and adults of the tobacco moth and the cigarette beetle exposed in the space unoccupied by tobacco in the warehouse during the fumigation. The percentage mortality obtained in test lots of insects is summarized in table 1.

These tests indicate the possibility of the effective fumigation of open warehouses. An 8-ounce dosage of the fumigant provided the most satisfactory results, and it is indicated that dosages of 10 and 12 ounces should be tested in future work.

The cost of the three fumigations was as follows: Labor and materials for piping warehouse $23.95, hydrocyanic acid $255, services of a pest-control operator $270, waterproof canvas for sealing louvers $45.92, plastic insulating material $16.63, and labor for sealing and for opening up of warehouse $135.73. The total cost was $747.23, or about 39 cents per 1,000 pounds of tobacco treated.

It is believed that further experimentation will determine that the cost for labor and materials can be reduced and that the effectiveness of fumigation under these conditions can be increased.—7-6-40.

—W. D. Reed and P. K. Harrison, U. S. Department of Agriculture, Bureau of Entomology and Plant Quarantine.

Table 1.—Mortality of the tobacco moth and the cigarette beetle in open-warehouse fumigation tests with hydrocyanic acid gas, Richmond, Va., September and October, 1939.

Ounces of Fumigant Per 1,000 Cubic Feet	Temperature, Degrees F.	STAGES OF THE INSECT					
		Adults		Larvae		Eggs	
		Number	Per Cent Mortality	Number	Per Cent Mortality	Number	Per Cent Mortality
		Cigarette Beetle					
8	82	447	100.0	224	100.0	542	100.0
6	70	447	93.8	298	100.0	495	100.0
6	71	460	83.7	223	7.73	1,756	100.0
Check	74	150	0.0	94	3.2	579	2.6
		Tobacco Moth					
8	82	259	100.0	188	100.0	156	100.0
6	70	279	100.0	218	100.0	156	100.0
6	71	262	100.0	144	100.0	512	100.0
Check	74	88	30.7	44	4.6	151	52.9

Biteless Mosquitos

A few years ago Inspector John Dowell rushed into the office of the Desplaines Valley Mosquito Abatement District, Lyons, Ill., and reported millions of mosquitos in nearby Riverside. A leaking sewer had formed a pool fifty by one hundred feet from which mosquitos had emerged for weeks. So J. Lyell Clarke, the sanitary engineer in charge of the district, investigated.

First of all Clarke sat in the infested grass near the pool (sprayed by this time) and waited for bites. He waited in vain night after night not for mosquitos but for bites. There were no complaints from the neighborhood. He identified the adult mosquitos as Cules territans.

Year after year Clarke exposed himself to mosquito bites. Culex territans never molested him. But Cules pipiens and Culex Salinarius did. He even went so far as to release two hundred territans under his bed at home. There was the usual humming. But nobody in the family was bitten, though the house was full of mosquitos. Three hundred territans released within a screened sleeping porch and kept alive with water and fruit raised not a bite in ten days. But five hundred pipiens drove Clarke off the porch. Another kind of mosquito, Aedes vexans, proved to be an equally efficient biter. When territans does bite, Clarke discovered, it is only because it is starving or thirsty.

After twelve years of such studies Clarke has decided that it is a waste of money and time to spray grass just to kill territans. And there have been no complaints in his district.

We wish we were an entomologist, so that we could identify a biting mosquito when we saw it. *—New York Times.*

Two Termite Articles in Public Press of Interest as PCO Promotional Material

One—Recommends Public Consult PCOs

Angled from the layman's point of view, two articles on termites were recently published in the press: (1) TERMITES by Thomas O. Shearman, April, 1941, issue of The American Home* (advocates PCOs be called as consultants in termite infestations); (2) DESTRUCTIVE TERMITES HAVE COMPLEX SOCIAL ORDER, is out of the Chicago Sunday Tribune of May 18, 1941.

Inclusion of either one or both of these articles by PCOs in their sales promotional effort should, we think, prove constructive along educational as well as sales lines. Moreover, since the designated material originates from impartial sources, greater acceptance by the public because of this fact is more likely.

The information which follows may already be known to you; but we repeat it—just in case. Permission to reproduce either one or both of these articles must be obtained from the Editorial Departments of the publications mentioned. Credit line indicating publication source must, of course, be imprinted, on material so used. Photo-offset method of reproduction is advised since this would obviate the added expense of making half-tones of the illustrations highlighting the articles.

Further information (with pleasure!) if you will write either Bill Buettner or Pests.

*Main Offices: 444 Madison Avenue, N. Y. C.

"Anger manages everything badly."

Analyzes Fact Disclosure Rules

That the law requires the disclosure of material facts pertaining to merchandise whenever failure to disclose might mislead or deceive the purchasing public is the opinion of the National Better Business Bureau, announced as the result of a study of court decisions and Federal Trade Commission cases in a bulletin to be issued. According to Edward L. Greene, general manager of the bureau, the bulletin was issued in order to answer questions advertisers raise with the bureau from time to time as to whether any basis exists for requiring an advertiser to reveal information about his product and, if so, under what circumstances.

The bulletin discusses the basis in law for Federal Trade Commission action in cases involving non-disclosure. Disclosure of material facts has been required by the courts, according to this bulletin in numerous cases where failure to make known such material facts was found to have the tendency, capacity or effect of misleading the consumer. Thus the commission's requirement that facts be disclosed whenever failure to reveal such facts would be likely to deceive consumers is not a mere regulation, as some advertisers have thought, but a requirement of law, the bulletin declares.

A top flight advertising man used to be hailed as a brilliant copywriter, but today's highest accolade goes to the possessor of a great legal mind.

—*Advertising Age.*

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Larvacide is as good as a death warrant for Mr. Moth and his family. • No upholstery is too deep, no infested floor crack too tight—to prove a sure refuge from Larvacide's deadly fumes. • Larvacide not only kills the adults and larva, but also sterilizes the eggs. • Larvacide penetrates to reach where lighter, less potent fumigants may not go. • Larvacide doesn't affect or discolor clothing, textiles or furs, won't harm rugs or drapes, needs no cumbersome apparatus for application. • SAFER Too—while any good fumigant is deadly to humans, anyone blundering into premises under fumigation, leaves in a hurry at the first whiff of Larvacide's tear gas fumes. • Write for helpful literature.

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329 EAST 29th ST. ESTABLISHED 1915 NEW YORK, N. Y.

The Common Names of Insects. . .

(Continued from Page 10)

flier, November moth, spring canker-worm, winter moth, yellow Monday cicada.

18. *From generalized type of habitat*: barkbeetles, bark lice, bedbug, book lice, dampwood termite, desert locust, drugstore beetle, drywood termite, firebrat, ground beetles, house fly, marsh treaders, meadow grasshoppers, museum beetles, petroleum fly, rainbarrel mosquito, sand wasps, stable fly, stoneflies, subterranean termites, tree crickets, treehoppers, valley grasshoppers, water beetles, water bugs, woodland skipper.

19. *From geographical habitat (original or introduced)*: American roach, Angoumois grain moth, Argentine ant, Australian roach, Black Hills beetle, California oak moth, California prionis, Carolina locust, Colorado potato beetle, Congo fly, European corn borer, European earwig, Florida red scale, German cockroach, Great Basin tent caterpillar, Hessian fly, Indian meal moth, Indian rat flea, Italian pear scale, Japanese beetle, Mediterranean flour moth, Mediterranean fruit fly, Mexican orange maggot, Nevada termite, Rocky Mountain locust, San Jose scale.

20. *From names of animals which they resemble or simulate in some manner*: ant lions, aphis lions, barnacle scale, black boys (cerambycid beetles), buck moth, buffalo gnats, bulldog ants, camel crickets, crab louse, crane flies, cuckoo wasps, curlew weevil, dragonfly, elephant beetle, giraffe beetle, goat moth, grouse locusts, hummingbird moths, kangaroo beetle, leopard moth, lion beetle, little bear, lobster (moth), mole cricket, owl midges, pear slug, pigeon tremex, rhinoceros beetle, scorpion flies, serpent flies, spider beetle, stag beetles, swifts, terrapin scale, tiger beetles, tiger swallowtails, toad bugs, tortoise beetles, woolly bear, zebra caterpillar.

21. *From names of other insects some of which they simulate*: bee flies, bee killer (bugs), cicada hunters (wasps), drone fly, house flies, mantis fly, mosquito bees, mosquito hawks, moth flies, moth lacewings, moth midges, wasp flies.

22. *From smell*: malodorous beetle, musk beetle, odorous ant, stink beetles, stink bugs, stink flies.

23. *From defense mechanisms*: armored scales, bombardier beetles, fire ant (from sting), kissing bug, spittle bugs, stinging ants, stinging bees and wasps.

24. *From illuminations*: fireflies, glow worms, lantern fly, lightning bug, luminous mayflies.

25. *From the firmament*: lightning bug, luna moth, star psylla, sun flies.

26. *From trades and professions*: acrobat ant, admiral butterfly, carder bees, carpenter ants, carpenter bees, carpenter worm, driver ants, engraver beetles, ensign butterfly, goldsmith beetle, harvester ants, mason bees, mason wasps, nun moth, peddlers (beetles), penny doctors (larvae of tiger beetles), sexton beetles, snake doctors, soldier beetles, soldier flies, trumpeter bumblebee.

27. *From the transmission of diseases or from injurying livestock*: bot flies, fever fly (March fly), malaria mosquito, typhoid fly, warble fly, yellow fever mosquito.

28. *From classical sources, mostly Greek myths*: Atlas moth, Hercules beetle, Midas flies, Polyphemus moth, Promethea moth, Psyche, Sphinx.

29. *Horrible or grotesque names*: cannibal flies, death moth, death's head moth, devils coach horse, Devil's darning needle, diabolical ironclad (beetle), hag moth, hellgrammite, infernal blister beetle, mule killer, thief ant.

30. *From scientific names*: anopheline mosquitoes, aphis, blastophaga, buprestids, chalcid flies, chrysopa fly, coccids, cynipids, dermestids, diabrotica, hippodamia, mantids, psyllids, scutellista, sphingids, termites, thrips.

31. *From terms of honor*: admiral (butterfly), emperor (moth), king beetles, monarch (butterfly), regal moth, royal moth, royal purple, viceroy.

32. *In honor of entomological collectors, specialists, officials, and patrons*: Baker's mealybug, Comstock's mealybug, Dyar's mosquito, Edward's bumblebee, Fernald's yellow jacket, Fuller's rose weevil, Glover's scale, Hagen's dustywing, Herm's louse, Howard's aphid, Kellogg's whitefly, Koebele's ladybird, LeConte's ladybird, Lorquin's admiral, Marlatt's scale, Nuttall's blister beetle, Pharao's ant, Putnam's scale, Sacken's hoplia, Say's plant bug, Townsend's cicada, Walsingham's dragonfly.

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(Continued on Page 27)

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1919. Friendly Fairies. Volland Co., Chicago.

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Shorewood Now Boasts of Most "Rat Free" Community

What St. Patrick did to the snakes in Ireland, the village fathers have done to the rats in Shorewood.

Pointing with pride, the village officials have said their community, after 18 months of diligent work by an exterminator, was now the most "rat free" community in the country.

How this enviable record was accomplished was explained by Harry A. Schmitt, Shorewood village manager:

"In 1939 we had complaints on rats from various residents just like every city has. We decided to do something, and called in an exterminator. He worked all the fringes of the village to waylay any rodents which might be thinking of invading our land.

"Then he got those which had already taken up residence here. So now it is only a rare occasion that we have to call in the exterminator, who is under yearly contract to the village. In this way they come once a week, look over the situation and depart unless there's a rat, or maybe a mouse, to be taken care of."

—Published in Milwaukee Sentinel.

EDITOR'S NOTE: *Why it pays to call in an experienced PCO.*

Wood ticks can go without food for four years.

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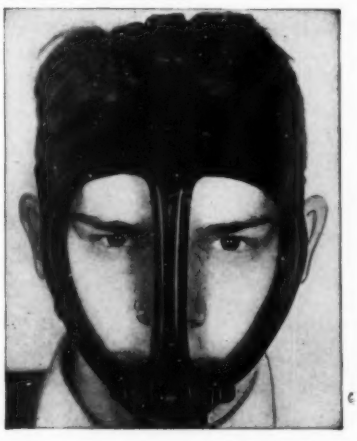

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New Du Pont Laboratory Has Modern Facilities

A three-story laboratory and office building, to be devoted to pest control research, has been completed at the Du Pont Company's Experimental Station here. Described as affording the most modern equipment for the study of insecticides and fungicides in the country, the building replaces a smaller structure in which the laboratories have been housed since 1937.

A carbon arc lamp said to be the closest approach yet devised to natural sunlight, has been installed along with other new equipment in the adjoining greenhouse. The lamp gauges the effects of sunlight on insecticides and fungicides on growing plants. An experimental garden plot used for preliminary testing of pesticides on plants adjoins the greenhouse. Extensive field trials are conducted under different regional conditions throughout the country.

The new unit has been designed to permit the closest possible coordination of experimental and practical work, according to Dr. Wendell H. Tisdale, director. Confirmation of laboratory conclusions by field tests, he said, is regarded as an essential of the program.

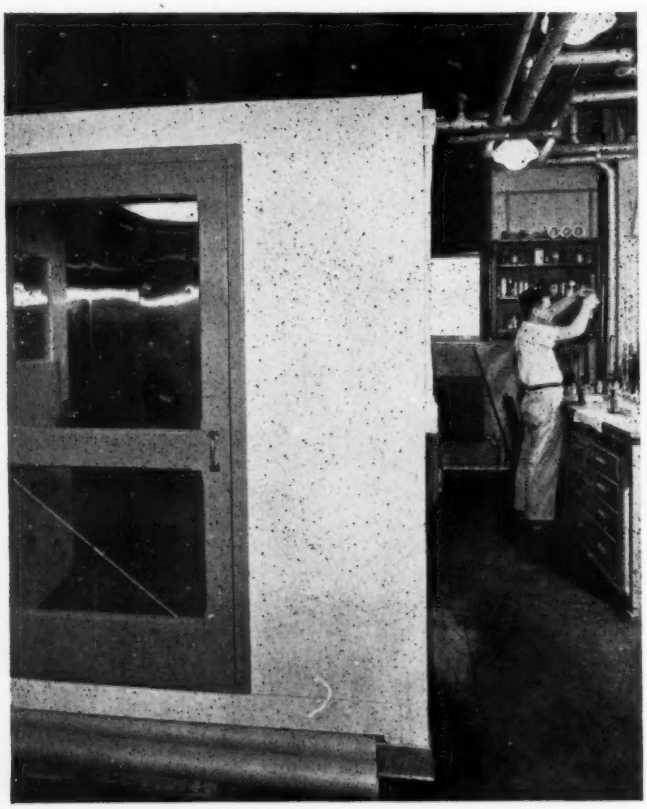
Offices and laboratories are provided for entomologists and plant pathologists, and for chemists who prepare new control chemicals for experimental use and constantly seek to improve those now in use. Special chambers and incubators for rearing various insects and for growing "fungi" under precise scientific controls are available. Specially-designed equipment, representing advanced technical practice, has been installed to facilitate the work, including spraying machines which duplicate the effects of mobile field rigs.

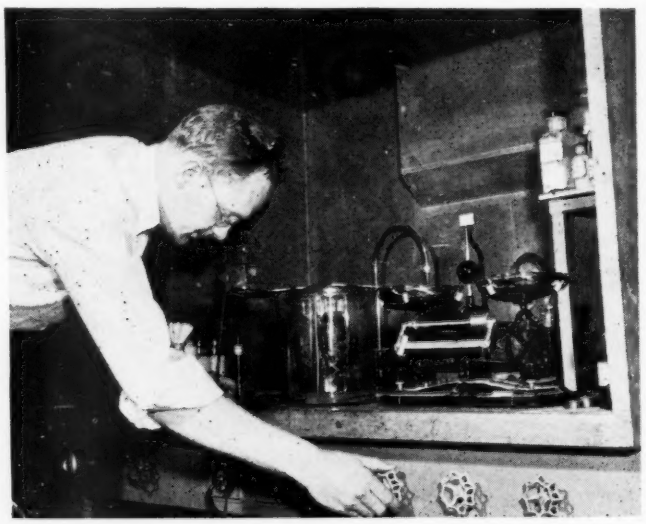
One laboratory is devoted to the compounding of experimental chemicals for application as sprays or dusts. Special consideration is given to the development of spreading and sticking agents and other assistants including inert carriers. A sample file containing more than 4,000 different chemicals is available in this laboratory for future reference. The proximity of various other laboratories of the Du Pont Experimental Station permits access to chemicals synthesized for different uses that may prove useful in pest control. These can readily be obtained and the chemists responsible for their preparation are available for consultation.

A laboratory is specially equipped to carry on exploratory work on fungicides and bactericides. Numerous chemicals are evaluated in the search for better control treatments for plant diseases, wood rots, and the molds and decay of many other products. The study of termite control also is conducted in this laboratory.

An "insecterie" for raising flies occupies one room, adjacent to an improved type of "lethal chamber," for judging the effectiveness of flysprays and household insecticides. It eliminates some of the difficulties experienced with the standard type chamber used in other laboratories. Another chamber equipped with automatic temperature and humidity control is provided for rearing codling moth larvae and conducting comparative tests of chemicals.

A room in the basement of the greenhouse is devoted to special equipment used for testing chemicals against the Japanese beetle and other insects. Provision is made for the control of light, moisture and temperature. The elaborate equipment permits experimenters to complete studies in two days that would take a week under less favorable circumstances. The peculiar habit of the Japanese beetle of gorging itself on bright, hot days when the humidity





Testing the effectiveness of fungicidal chemicals at the new Du Pont Pest Control Laboratory, Wilmington, Del. Experiments with wood, rope, fabrics and other cellulose materials attacked by fungi are studied.

The fly laboratory at the new Du Pont Pest Control building, Wilmington, Del. Set in the center of the room is a "lethal chamber," in which flies are loosed and killed to weigh the effectiveness of insecticides.

—Pictures Courtesy Du Pont Company.

is high is indulged by artificial weather conditions.

Investigations at the laboratory cover a wide range, Dr. Tisdale said. In addition to the usual problems of insect control, the work includes development of non-poisonous fungicides for use on stored agricultural products, such as fruits and vegetables; wood preservation for the control of stains, fungus decay and termites and in the preservation of cellulosic materials; preservation of harvested plant products; weed extermination; and a study of plant hormones.

Under "pests" it was explained, are grouped destructive insects, rodents, fungi, bacteria, weeds, protozoa, worms, destructive marine forms such as teredos, barnacles, squids, and algae, and other harmful forms of animal and vegetable life.

Associated Pest Control Operators, Inc., of Los Angeles

May 14 meeting was held at Eaton's Chicken House. Full report on A.B. 1057 was made. An hour's discussion on Kalotermes took place. June 11 meeting was given over to Ladies Night. Picnic plans for July were discussed with L. K. Klinker as chairman. Incidentally every second Wednesday of each month is meeting night, July and August excepted.

LOCAL ORGANIZATION NEWS

New England Pest Control Association

The New England Pest Control Association held one of its informal, open meetings on Wednesday evening, June 4th, at the Hotel Lenox in Boston. The entire Pest Control Industry in this area was invited to attend.

Following the recently adopted policy of scheduling a speaker for each meeting who would have a definite educational message to give our group, we were particularly fortunate to have Mr. Edward W. Gallagher with us. Mr. Gallagher who is Asst. General Manager of the Boston Better Business Bureau and Manager of their Merchandise Division, had as his subject "Ethics in Relation to the Pest Control Industry." A very interesting "Questions and Answers" period developed immediately after Mr. Gallagher's speech, during which many important points were discussed.

This meeting was the last of the current season. Program chairman, Bart Eldredge has a very fine lineup for our next meeting which will be in September.

Those attending were: Charles W. Houghton, President, Safety Fumigant Company; Mark Weintraub, Secretary, Astor Exterminating Company; Lewis Rich, George B. De Lue Company; Thomas Sheehan, Paramount Laboratories; Earl Meyers, New England Bug Exterminating Company; Kenneth Cook, Ransford Insecticide Co.; Louis Weintraub, Astor Exterminating Company; Mr. Corey, Waltham Chemical Company; Fred Vayette; Mr. Edward F. Gallagher and Mr. Spellman, Boston Better Business Bureau; Reuben Davidson, Liberty Exterminating Company.

New Jersey Pest Control Association

The New Jersey Pest Control Association held its regular meeting on June 11.

John Medoff and his staff of officers were installed for the ensuing year.

The Tarnelene Exterminating Co., of Orange, New Jersey, became a member of the association.

An innovation was started in the state which in all probability will be considered or followed by the National membership throughout the entire country if proven successful. The association has placed an ad in the different telephone directories in three counties listing the members and giving the code of ethics of the National Association. If the idea works out well, an ad shall be placed in every directory in the state. The next meeting for the association will be held early in September.

Every man is a fool for at least 5 minutes every day. Wisdom consists in not exceeding the limit.—Elbert Hubbard.

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HAN-DEE may be used with safety in restaurants and packing houses where poisonous materials are prohibited.

Packed in cases of three dozen, one pound cans, either in one kind of bait, or any assortment of the three baits.

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Tax Status of Loss in Termite Damage

Deductibility Relative to Individuals Not in Business Awaits Finding

By GODFREY N. NELSON

As a general rule losses sustained in the conduct of a business, not compensated for by insurance or otherwise, are deductible from gross income in determining taxable income; likewise, losses incurred by an individual in any transaction entered into for profit though not connected with a trade or business.

Losses sustained by an individual on account of property not connected with his trade or business, and not compensated for by insurance or otherwise, are deductible only if they arise "from fires, storms, shipwreck or other casualty, or from theft." Thus, except for losses by theft, such losses are confined to those resulting from casualties.

Rule on "Other Casualty" Sought

One form of loss now before the courts, which is of great economic importance, claimed under the classification of "other casualty," is a loss resulting from the destruction of property by termites. Although similar claims have been passed upon adversely by the Board of Tax Appeals and by the courts, in a case now on appeal before the United States Circuit Court of Appeals for the Second Circuit the board expressed a lack of certainty in their findings. "We conclude, but not without some doubt," said the board, "that the loss here in question did not result from a casualty within the meaning of that term as used by Congress in Section 23(e) (3)." (42 B.T.A. 206.)

In another recent case, in which the taxpayer sought to recover taxes paid, based on a claim that a loss was sustained from the destruction of a building by termites, and in which the Collector of Internal Revenue sought to dismiss the suit by motion on the ground that in other cases claims for loss by termites had not been sustained, the United States District Court of Massachusetts denied the motion (C. A. No. 429, May 8, 1941) and ordered the case to be tried on its merits.

In denying the motion the court said that "the allegations of the complaint state a claim upon which relief can be granted"; that whether the destruction caused by termites is to be regarded as a "casualty," entitling the taxpayer to a deduction therefor, is a question of fact "to be determined upon evidence properly adduced at the trial." Thus the court refused to rule, as a matter of law, that the loss was not deductible.

Points in Will Rogers Case

A loss from the destruction by termites of a personal residence of the late Will Rogers was denied to his estate by Circuit Court of Appeals for the Ninth Circuit on May 1, 1941. Here, however, the building had been razed before the property was sold. In calculating the basis of the property, the cost of the razed building was added to the cost of the land. In making his calculation the Commissioner of Internal Revenue deducted from the total cost of the property the cost of the house and improvements, on the theory that since the house was not sold it could not be used to increase the cost of the property.

The District Court agreed with the commissioner and the Circuit Court affirmed the lower court. The lower court held that as used in the law the word "casualty" included the "sense of suddenness" which was lacking here. After considering the meaning of the word "casualty," as defined in dictionaries, the court concluded that since damage by termites is not a sudden occurrence but a development over a longer period of time the deduction was improper.

The Board of Tax Appeals in their decision above mentioned (now under review by the Circuit Court of Appeals for the Second Circuit) stated: "The contention of the petitioner does not fail to find some support in the definitions and authorities on the meaning of this word (casualty). The element of chance is present. The attack was unexpected and somewhat unusual. No human agency contributed to it." The board recognized, however, that the destructive process was slow and that "the attack was not in the nature of an inevitable accident which could not be foreseen or guarded against successfully."

A loss due to progressive decay or corrosion, "occurring without any unusual action by the elements," has been held not to arise from a "casualty" within the meaning of the statute (54 Fed. (2d) 537). This case, however, would appear to be distinguishable from one in which the deterioration was rapid.

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Specialists in the Control of Termites and Difficult Insect Pests.

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WHAT'S NEW IN PEST CONTROL-PERSONALS

Sincere sympathy is extended to David and LeRoy Weisburger, whose mother died on June 16th.

Attending the mid-year meeting of the National Association of Insecticide and Disinfectant Manufacturers recently at the Edgewater Beach Hotel, was Walter S. McCloud, who brought the greetings of the pest control industry.

"Bill" Buettner was a member of the faculty at the Third Annual Short Course for School Building Service Employees, Supervisors, Custodians, Janitors, Engineers and others held at Teachers College of Columbia University, June 23 to 27. Speaking on the subject of "Insect and Rodent Control in Buildings," Bill emphasized what should be expected in maintenance service and why such work should be done by commercial pest control operators who are trained for this work.

Reunions serve as a fair measure that 'Time goes on'. Back for their 20th reunion journeyed the C. Norman Dolds at Dennison College, Granville, Ohio. Yes sir, to cap the pleasant reunion, the H. K. Steckels of Columbus, Ohio, were pleased with a visit from the Dolds.

Al Cossetta reports visits with Jess Miller, Chas. Menard, Geo. Rader, M. K. Wayne and H. J. Davies, pest control operators extraordinary in sunny California. The conversation inevitably veered to the coming San Francisco convention and it is apparent from the interest and enthusiasm of the California members that this convention will mark another forward step in the history of the industry.

Also Al and D. E. Reck and families attended the 44th General Conference of the Seventh Day Adventists which was held in San Francisco Civic Auditorium, San Francisco, California, June 2 to 14, inclusive. Attendance was 10,000 delegates from all over the world at conference opening with figures reaching over 20,000 before it closed.

Seventeenth National Shade Tree Conference and Exhibit: Will be held at the Mayflower Hotel, Washington, D. C., August 26-29, 1941.

Helen Laing Graduates: The ever popular, tall and stately Laings of Cleveland find themselves the proud (and who wouldn't be) parents of another daughter who has just graduated from the Cleveland Heights High School. Helen, or "Mickey" as she is affectionately known, is the cause of the unalloyed joy of her parents. Congratulations to Helen and best wishes for many other happy family occasions. The Laings have three children.

C. L. Schroeder, Vice President of McLaughlin Gormley King Co., Minneapolis, has been appointed General Sales Manager of the Company.

Mr. Schroeder has been in charge of the sales of the Food Products Division of the Company for the past four years. He will now also have charge of sales of the Company's Insecticide Division.

The Minneapolis firm developed the first standardized pyrethrum concentrate and are pioneers in the development of pyrethrum insecticides. They are also well known in the Spice and Extract Industries.

Nuptials for Dick R. Clowes' Daughter: Felicitous word reaches us of Frances Mary Catherine's marriage to Hugh Ellsworth

Stock Up Now

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Houchin's Insect Powder Guns, Bellows & Blowers

Designed to Meet Your Every Requirement

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YORK CHEMICAL CO.

Suppliers of Complete Exterminating Chemicals.

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Erskine on May 30 at the Knoxville Christian Church, Pittsburgh, Pa. Felicitations to you Dick, your daughter and newly acquired son, with hopes that each succeeding anniversary will find you all happy, well, and well supplied with the good things of life.

Dr. Karl T. Compton has made the following comment: "If all American industry spent 2 per cent of gross sales income for research, there could be mobilized in America a quarter of a million scientists and engineers and a billion dollars a year for the development of new goods, new services, new industries, and new sources of wages and salaries."—From C. P. I. Circular, May 26, 1941.

U. S. Secretary of Agriculture has appointed Avery Hoyt as Acting Chief of the Bureau of Entomology and Plant Quarantine.

"Bug Chaser" Lamps: The Lamp Division of Tested Papers Company, of America, Inc., Chicago, has placed on the market "Bug Chaser" lamps. It is claimed the lamps which are made of yellow glass will reduce the attraction of phototropic insects by as much as 92%. Such insects as mosquitos, gnats, moths, flies are affected. Suggested places to use these lamps are sun porches, doorways, gardens, filling stations, swimming pools, dance pavilions, etc.

Pittsburgh, Pa., June 1941—G. C. Stephenson, of Pittsburgh, has been appointed sales manager for the Tar and Chemical division of Koppers Company, it is announced by J. N. Forker, vice president of Koppers Company in charge of the Tar and Chemical division.

Mr. Stephenson became affiliated with the Koppers organization in 1929 as a salesman. For the past 10 years he has been manager of Creosote sales. Before joining Koppers he was a chemist and chief chemist at wood treating plants of the A. T. and S. F. railroad and chemist and superintendent at the Port Reading, N. J., creosote plant of the Reading Company. He was graduated from Lombard College, Galesburg, Ill., in 1920 with a bachelor of science degree in chemistry. He was born in Oneida, Ill.

Immediate Sprain Cure: According to a news item in the New York Evening Post, a new treatment for sprains and pulled muscles was reported to give "amazing" results and permit immediate normal use of the affected part in most cases. An anesthetic drug, ethyl chloride is sprayed on the skin at the painful place. Dr. Hans Kraus of New York described the method in the Journal of the American Medical Assn. He recommended its wide use, especially for such injuries among athletes, laborers and those in military service.

Mexican Ally Found To Fight Invaders

Mexico has come to the aid of the U. S against an invader that came into this country via the southern republic. The invader is the Mexican bean beetle, now a serious crop pest in many eastern and southeastern states. The aid consists in a useful small fly, a natural enemy of the beetle obtained over a wide range of territory in central Mexico.

—Science News Letter.

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Additional Patents Relating to Pest Control

By DR. R. C. ROARK

EDITOR'S NOTE: *This service is provided through the Department of Agriculture for the purpose of bringing to the attention of those interested such matters that may be of assistance to the industry. The Department of Agriculture assumes no responsibility for the merits or workableness of of any of the inventions mentioned. Copies of all patents can be obtained for 10c (no postage stamps) sent to the Patent Office, Washington, D. C. When placing orders be sure to note the number of the patent, the date, the name of the patentee and the subject of the invention.*

2,232,439 (Feb. 18, 1941; appl. Sept. 27, 1937). MEANS FOR STORING GRAIN. Thomas R. Connor, Morris, Ill.—This structure is substantially verminproof.

2,233,161 (Feb. 25, 1941; appl. Oct. 16, 1939). SPRAYING DEVICE. John Fitch, Bloomfield, N. J.—William Martin Vogel, Montclair, N. J.—A hand-operated sprayer for the distribution of liquid insecticide is described.

2,233,162 (Feb. 25, 1941; appl. Oct. 16, 1939). SPRAYING DEVICE. John Fitch, Bloomfield, N. J.—William Martin Vogel, Montclair, N. J.—A hand-operated sprayer for the distribution of liquid insecticide is described.

2,236,540. (Apr. 1, 1941; appl. Mar. 10, 1939. FUNGICIDE. Albert S. Johnston, Smithfield, N. C.—A fungicidal composition comprises an alkali metal permanganate and ferric sulfate said sulfate acting to liberate more of the oxygen of the permanganate for fungicidal purposes than is liberated in the absence of said sulfate. For example a 0.2 percent by weight of a 50:50 mixture is used dissolved in water.

2,236,698. (Apr. 1, 1941; appl. May 25, 1940). COMBINED INSECT TRAP AND TRAFFIC LIGHT. Louis J. L. Rector, Vienna, Va. This invention is designed as an improvement over the trap disclosed in U. S. Letters Patent No. 1,807,550, dated May 26, 1931.

2,236,227. (Apr. 1, 1941; appl. June 20, 1940). RODENT TRAP. Elmer Huggins, Corinth, Miss.

2,237,356. (Apr. 8, 1941; appl. May 2, 1939). INSECTICIDE. David R. Merrill, Long Beach, Calif.—Union Oil Company of California, Los Angeles, Calif.—An insecticide comprises a slowly volatilizing petroleum fraction, and a low alkyl ester of 3-isopropyl 6-methyl 3, 6-endoethylene delta'-tetrahydro-phthalic acid.

2,237,687. (Apr. 8, 1941; appl Aug. 23, 1939.) SPRAYING DEVICE. Lee Parsons and Charles R. Potter, Sonoma, Calif.

2,237,842. (Apr. 8, 1941; appl. Dec. 16, 1938). SPRAYING DEVICE. Harry M. Reynolds, Columbus, Ohio.

2,237,984. (Apr. 8, 1941; appl. Oct. 11, 1938; in Great Britain, Oct. 18, 1937). CLEANING AND FUMIGATING DEVICE. Alexander Brown Frame, Kirn, Scotland, and William Johnston Frame, London, England.

2,238,120. (Apr. 15, 1941; appl. Aug. 26, 1939). SPRAYING DEVICE. Raymond H. Launder, Wabash, Ind.—A sprayer for fruit trees is described.

2,238,242. (Apr. 15, 1941; appl. June 24, 1939). AROMATIC FLUORINE COMPOUNDS. Walter J. Balon, Carneys Point, and John M. Tinker, Penns Grove, N. J.—E. I. du Pont de Nemours & Co., Wilmington, Del.—The patentees claim a process of making symmetrical diphenyl difluorodichloro-ethane which comprises passing anhydrous gaseous hydrogen fluoride into a mixture containing 75 parts of symmetrical diphenyl tetrachloro-ethane and 107 parts of red mercuric oxide until the red color of the mercuric oxide disappears. The new fluorine compounds disclosed herein are useful as starting materials in the preparation of various chemical products, such as dyestuffs, fungicides, insecticides, and pharmaceuticals.

2,238,521. (Apr. 15, 1941; appl. Nov. 20, 1939). SPRAY GUN. Gustaf Gustafson, Yakima, Wash.

2,238,949. (Apr. 22, 1941; appl. Feb. 3, 1937; in Germany, Feb. 6, 1936). PROCESS OF MODIFYING THE ELECTRO-CHEMICAL PROPERTIES OF SHAPED ARTICLES. Paul Schlack, Berlin-Treptow, Germany.—Walter H. Duisberg, New York, N. Y.—The patentee claims the process of increasing the basic character of fibrous materials and films comprising a material containing a radical selected from the group consisting of the imino- and amino groups which process comprises reacting said fibrous materials and films with thiourea in the presence of an alkylating agent, whereby said compounds react with said imino- or amino-group of the fibrous materials or films to form a residue containing the group.

2,239,079. (Apr. 22, 1941; appl. Mar. 1, 1939). INSECTICIDAL COMPOSITION. Gerald H. Coleman and Clarence L. Moyle, Midland, Mich.—Dow Chemical Co., Midland.—An insecticidal spray comprises a noncorrosive organic solvent having dissolved therein a product selected from the class consisting of the extracts of pyrethrin- and rotenone-bearing plants, and as an active toxicant and stabilizer a halo-phenoxy-alkyl-thiocyanate.

2,239,080. (Apr. 22, 1941; appl. Mar. 1, 1939). INSECTICIDAL COMPOSITION. Gerald H. Coleman, Clarence L. Moyle, and John E. Livak, Midland, Mich.—Dow Chemical Co., Midland.—An insecticidal spray comprises a non-corrosive organic solvent having dissolved therein a product selected from the class consisting of the extracts of pyrethrin- and rotenone-bearing plants, and as an added toxicant and stabilizer a compound having the formula

$$Rm(Xm)C_6H_3\text{-}O\text{-}C_nH_{2n}\text{-}SCN$$

wherein R represents a hydrocarbon radical; X represents a member of the group consisting of alkyl, cycloalkyl, aralkyl, aryl, aryloxy, lower alkoxy, and alkenyl radicals, halogen and hydrogen; n represents an integer from 2 to 6, inclusive each m represent an integer not greater than 2; and the nuclear substituted phenoxy group contains at least 8 carbon atoms.

2,239,464. (Apr. 22, 1941; appl. Feb. 21, 1939). GOPHER POISON DISPENSER. Frederick C. Moger, Harrison, Mont.

Thallium-Impregnated-Seed
10 lbs.—$4. 25 lbs.—$7.
50 lbs.—$12. 100 lbs.—$20.
For the extermination of mice

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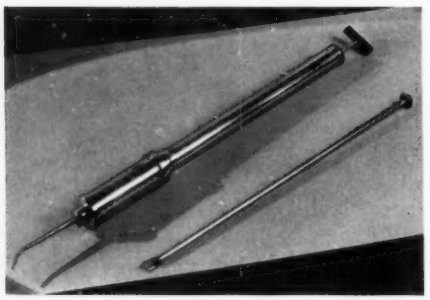

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Informative bulletin which discusses what to do when fumigating against carpet beetles—WRITE PESTS—BULLETIN No. 48.

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Descriptive literature of new insecticide concentrate based on the esters of carboxilic acid. Manufacturer claims this concentrate possesses higher property than comparative products when diluted in same proportion. Laboratory reports, certificate of analysis also furnished and further data in foregoing.

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Circular descriptive of its use for Grasshopper Bait, Weed Killer, Mormon Cricket Dust, Tree Killer, Termite Control, Wood Preservative. Method of treating foundation timbers and treatment of infested timbers. FREE COPY MAY BE HAD BY ADDRESSING CHIPMAN, c/o PESTS.

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Discusses new business opportunity for fumigators in the fumigation of theatre seats. This bulletin further explains the use of gas-tight sheets in this connection, and method of its employ in the work.

Write PESTS—Fumigation Covers.

Entomological Literature

Losses Occasioned by Insects, Mites and Ticks in the United States by J. A. Hyslop. Issued by the United States Department of Agriculture, Bureau of Entomology and Plant Quarantine, Division of Insect Pest Survey and Information. Brochure E-444.

Covers in part: Insects Affecting Man and Animals; Miscellaneous Pests; Table of Losses Occasioned by Insects; Quantities and Costs of Insecticides Purchased.

The Work of the Division of Insecticide Investigations 1927-1939—By R. C. Roark, Principal Chemist in Charge. U. S. Department of Agriculture, Bureau of Entomology and Plant Quarantine, Division of Insecticide Investigations. Wash., D. C. Brochure E-516, Nov., 1940.

Covers in part: Insecticides of plant origin; Synthetic organic insecticides; Relationship between toxicity and chemical constitution; Inorganic insecticides; Spray residues; Fumigants; Accessory materials, etc.

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